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Health Education in Extra-Cantonment Zones*

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SHIFTING soldier and civilian populations, housing shortages, prostitutes in battalions, and mushroom cafes by the score have forced extra-cantonment zones to take on the character of buffer states and given health officials the grave responsibility of maintaining health communities under the most unusual circumstances. But war has not really changed the basic principles upon which health programs are built; it has, however, demanded a recognition of special problems and a readjustment of all programs to cope with immediate needs.

I shall here describe a demonstration in community health education that is under development in the war areas of North Carolina.

Because the principal objective of the demonstration is to focus the attention of the public on health problems that have arisen and are arising in the war areas, those concerned with its planning and organization recognized from the beginning that the best way to develop a health education program at this time was to relate it to the war effort and to utilize the untapped reservoir of lay leadership that is always present in a community.

The demonstration was launched early last fall when twenty-five of the leading women in one town were interviewed by a health education consultant, loaned to the State Board of Health by the U. S. Public Health Service and assigned to the county health department. The women were asked if they were at all concerned over the physical condition of the young men of the nation, as indicated by the draft figures, and whether they planned to do anything about the condition in their own community. They were also asked what they thought about other local health problems and whether they would be willing to sponsor a health education program in order that they might become better informed about these problems and their relation to defense. Every woman interviewed felt that there was a need for such a

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program and that a special effort should be made to develop one.

Upon completion of the interviews, a meeting was scheduled to which all the women of the community were invited. At this assembly it was decided that one organization designed for an all-out effort should be formed. A Central Planning Committee was elected to work out a plan of action and report back to the whole group. After that was done, at a subsequent meeting the organization selected as its name, "Woman's Committee Health Education Program for Defense" and listed the following as its objectives:

1. To make the town "the healthiest in North Carolina" by improving and protecting the health of every man, woman, and child in it.

2. To organize all the women, both white and Negro, into neighborhood study groups to prepare them for any emergency.

To make those objectives possible, the local Central Planning Committee devised a plan of action to reach every woman in the community. They divided the town into districts and then further subdivided the districts into blocks or neighborhood areas and selected a chairman for each. The "block" chairman accepted the responsibility of visiting every woman living in her area and inviting her to enroll in a neighborhood study group. The study groups were then scheduled to meet monthly at the home of the "block" chairman, to study and discuss health problems. Motion pictures and printed materials were provided for the meetings by the local health department.

Preceding the monthly neighborhood meetings, all the chairmen met to receive instructions and review the materials selected for group study. A representative from the local health department assisted with the meetings. Subjects selected by the committee for study were those of particular importance to the war area and included: the venereal diseases, nutrition, tuberculosis, dental care, sanitation, cancer, and colds.

The Negro population was reached through the same type of organization as the white and was given identical service by the local health department.

During November in addition to the regular monthly meetings, the Woman's Committee planned and operated a "Quiz Corner" under a famous old market house in the center of town. Although the "Corner" did not open officially until 10:00 a.m., volunteer workers began putting up exhibits and posters at 4:30 a.m., and other volunteers reported for duty throughout the day. The chairman for the day, who is a member of the Central Planning Committee, arrived at the "Corner" with a group of Boy Scouts at 7:30 a.m. and it was only after the last exhibit had been taken down, close to midnight, that she left her post.

The program was in charge of the white "district chairmen" during the day, while at night the Negro "district chairmen" took over. All were responsible for giving quizzes, explaining the health exhibits and assisting with the showing of motion pictures.

A crowd estimated at 5,000 persons came by the "Corner" during the day and night and over 300 persons took the quiz. Radio broadcasts direct from the scene were made three times during the day with prominent civic and health officials taking part.

The Woman's Committee also sponsored and prepared weekly radio programs, planned and wrote newspaper articles, gave "Victory luncheons" and organized classes for the Red Cross in home nursing and nutrition.

In March the committee made a community survey which was designated "Know Your City Day," and which proved to be of tremendous importance to the program. Eighty members of the

committee, working in teams of two members each, spent one day with all the agencies and organizations in the town that they felt made any contribution whatsoever to the total health program. Some of the places and persons visited were: clinics at the health department, the hospitals, presidents of medical and dental societies, Red Cross, the city welfare department, schools, public library, city recreation department, headquarters of the Boy and Girl Scouts, housing projects, United Service Organizations, jails, courts, restaurants, milk plants, the water plant, county agent, the Home Demonstration Agent, Farm Security Administration, and others.

After the survey had been completed and the Woman's Committee began to analyze their data, they were amazed at their findings—and particularly was this true of prostitution and venereal disease. A meeting with all chairmen was called and the facts were reported to them. They decided that something should be done immediately to remedy the situation, and scheduled a mass meeting and invited all city and county officials to attend. The whole question of prostitution and venereal disease, as it existed in the community, was reviewed in the most objective manner possible by members of the Central Planning Committee, and officials were requested to clean up the town and county or admit their unwillingness or incompetence to do so, in which case help from the federal government would be sought. In less than a week's time eighteen road houses and tourist camps were raided and padlocked and heavy sentences were given to the offenders. The people had spoken!

In order that town and county officials may be given continual encouragement to enforce the law, the Woman's Committee has appointed a working committee of thirty-one teams of two members each. Each team has a number which corresponds to a calendar day and when that day arrives is responsible for attending all sessions of the court and keeping a record of all the cases tried. Teams are also responsible for attending any open meetings of the following which fall on the day assigned to them: Board of Education, Board of Health, Recreation Board, Welfare Board, and City Aldermen. Reports from all teams are given at the regular monthly meeting of the Woman's Committee.

As an example of how the working committee functions—one morning a young prosecuting attorney was having considerable difficulty in establishing a case against a taxi driver, a procurer, and a madam when suddenly he received a note from the back of the courtroom informing him of a local ordinance of which he was unaware. He immediately shifted his approach and the three were given 18 months. The note had been written by one of the members of the " working team " who was also a member of a special committee appointed by the Woman's Organization to study local ordinances.

Soon after the first unit of the demonstration in community health education was started, a second was begun in an adjacent county, and since that time four others have been launched and are in various stages of development. In general, the organization of these programs has followed the pattern of the first, but because of individual differences, each town and county has designed its program to meet its own health needs. Additional health education consultants have been loaned to assist with the development of each of these units.

In four counties the program operates as a part of Civilian Defense and the district is the air zone and the neighborhood area, the sector, but otherwise the plan of organization is the same. Rural women in these counties are reached

through the neighborhood delineation groups of the Agricultural Extension Service.

One of the significant accomplishments of these community health education demonstrations has been their stimulation of professional workers in four counties to form coördinating councils or councils of social agencies which will not only advise lay groups about immediate problems but also work out long-range plans to provide for future needs.

There are many other highlights in the various programs, most of which have come about by adjustments to fit local needs. In one county, in addition to the regular organized study program, the Woman's Committee has provided assistance for all the prenatal clinics in six towns and has been responsible, as well, for the establishment of a public health clinic in a town where formerly such a clinic had been opposed. These women also organized four quiz corners and arranged for 22 Red Cross courses to be given in 8 communities. The prostitution problem was also given their attention and, working with the law enforcement officers, they were able to bring about considerable improvement in the area.

In another county the woman's organization known as the "Health and Defense League" has sponsored a Family Living Program and a Children's Day Camp in defense housing projects. They also held a series of health meetings at a Negro migratory labor camp and, as a result, several men and women went voluntarily to the camp nurse to get treated for syphilis. The same Health Defense League assisted the Selective Service registrants in filling out their questionnaires and were responsible for organizing a county nutrition council. Medical authorities at a large shipbuilding establishment are supplementing the Health Defense League's program by showing the venereal disease film "Know for Sure" to all persons seeking employment.

In the fourth area which was organized, the health education unit consists of two counties. In one of these the Woman's Health and Defense League conducted a rat campaign as one of its first activities. Negro leaders in this county have been particularly strong and have been able to carry a much larger share of the responsibility for program development than in any other area. The fact that the health department has taken such an active part in the community health education program has stimulated the department itself to develop in-service training and to plan a series of lessons for food handlers. In this county the health department and Woman's Health and Defense League plan jointly for two 15 minute radio broadcasts each week.

In the second county of this unit the woman's program began with a house-to-house fact-finding and immunization survey. The health officer, more than any other unit of the demonstration, has taken an active part both in the organization of the groups and in the program itself. In addition to this, lay leadership in this county has been very superior and, as a result, the program needs less actual supervision than in any other area.

The last unit which has been developed to date is in its initial stage of organization, and future plans call for the extension of similar programs in all of the war counties of the state.

Probably the most significant result of the demonstration from the standpoint of health education is the fact that the North Carolina State Board of Health has made provision for adding eight health educators to the local health departments in the war areas and has provided for the training of these workers through the facilities of the School of Public Health at the University of North Carolina.

Perhaps some specific mention should be made of the materials which were used in these programs, since the question of materials is always one of vital importance to the development of any community-wide program in health education. Where and how can one get them? Who will pay for them and what materials actually are available for groups with different intellectual endowments and educational and racial backgrounds?

While these questions still remain unsolved, the wide variety of materials which are being used have been secured from many sources such as: U. S. Public Health Service, state health departments, U. S. Department of Agriculture, National Dairy Council, Metropolitan Life Insurance Company, and state universities. When the programs began, only three of the health departments in the demonstration area owned motion picture machines and their film library consisted of two films. Each department had pamphlets on many subjects, but they were not available in the quantity needed for county-wide study programs. Nor was there any money in any of the budgets for health education. Therefore, arrangements had to be made to secure materials elsewhere.

An interesting sideline which developed from the community health education demonstration during the summer was a malaria education project sponsored by the U. S. Public Health Service in seven southern states. In North Carolina nine teachers carried on intensive malaria education programs in seven counties, six of which were in the counties just described.

In two counties during the first 7 months of the demonstration, 328 meetings were held, with a total attendance of 40,984 persons. Motion pictures on various phases of health were shown 398 times and 74,990 pamphlets were distributed. Conferences on the program numbered 538. Thirty radio broadcasts were given and over 75 articles about the program appeared in local newspapers. These figures do not include persons who did not attend the meetings but were reached by the " block " chairmen; neither do they include the Red Cross home nursing and nutrition classes which were organized as a part of the program, nor the home demonstration adult groups which used health materials loaned to them by the Woman's Committee. These figures are included in this description of the programs not because such statistics are at all a true index of health education, but so that some objective measure of the extent of community service may enter into the broader evaluation.

The figures that are really important are people—people who have found out for the first time that there are many problems in a community, problems that are all related and worthy of the consideration of every good citizen. Then, too, there are the *people* who admit that they have blocked other programs for years simply because they didn't know the facts; and there are those " southern ladies " who wouldn't mention words like " syphilis " and " gonorrhea " last September, but who only a few weeks ago were willing to spend hours in a venereal disease clinic learning the facts about the diseases and how they are handled by a health department.

There are the Negroes who, on a cold winter night or after a hard day's work, walked miles to see a health film and a few days later walked more miles to get a blood test. There is the school teacher who, after he saw a film on tuberculosis, went in for a chest examination and found that he had an active case of the disease. And the woman who knew she had a sore that needed attention but was afraid to find out the truth—until she saw a cancer film.

There are the women in mill towns who made house-to-house canvasses to urge mothers to take their

children to clinics to be immunized. These are the same women who came directly from the cotton mill looms with lint on their clothes to learn about health and take classes in home nursing so that they could do a better job in taking care of their children. And there are those people who have always thought that health departments were organizations to take care of the poor, mostly poor Negroes; but now know and appreciate the work being done. And the people who for the first time recognize that there is leadership at the "bottom of the hill" as well as at the top, and that everybody has a part to play in a true community program. And last, there are the staff members who were perfectly willing to devote several nights a week to teaching health classes or to showing health films.

There are many other things that people have said or done that can never be told, but are true evaluations, nevertheless.

It has been well said that, "Doing things for people is often easy, but it is often expensive and of temporary benefit; showing people how to do things for themselves may take a little more time, but it is relatively inexpensive and its results are lasting."

Today more than ever before, health education has the opportunity to awaken in each individual a sense of responsibility which will enable him to assist in developing a community dedicated to human welfare.

Tetanus in Drug Addicts

During recent years the spread of malaria among drug addicts is quite common and its epidemiology well understood, a common syringe, and intravenous injections, sufficing to carry malaria parasites to a new host.

Sporadic cases of tetanus in drug addicts are not uncommon, and have usually been ascribed to wound infection through carelessness. The following outbreak, however, admits of no such explanation.

A group of 9 cases of tetanus in Negro drug addicts (8 fatal) was reported during December and January. The victims were all friends living within a few blocks of one another and pooling their resources to obtain heroin. Following this use of a common supply all developed symptoms of tetanus after varying intervals and were admitted to a hospital where, with one exception, they died. Investigation showed that the heroin solution was prepared by placing the drug in water in a spoon and then warming sufficiently to dissolve. The use of a common syringe was denied, but each addict drew his allotted dose from the spoon. It is evident that the drug was contaminated with tetanus, although none of the material was available for examination.

Since this outbreak among Negro drug addicts, 3 additional cases of tetanus in white addicts have occurred. So far they cannot be linked to the Negro cases. It is possible that a substantial supply of narcotics coming from illicit sources may be contaminated with tetanus spores.—*Quart. Bull.*, City of New York Health Dept., Aug., 1942.

Pulmonary Tuberculosis Resulting from Extra-Familial Contacts*

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IN recent years, numerous epidemiological studies have shown that tuberculosis not infrequently occurs in several members of a family. The disease may attack as many as four generations. The frequency with which multiple cases have occurred within a given household has tended to obscure the importance of contacts outside the immediate household.

In mass surveys there is not the opportunity for individualization of cases that is necessary to discover extra-familial sources of infection. Rural communities with low death rates from pulmonary tuberculosis have afforded excellent opportunities for demonstrating the importance of extra-familial contact in the spread of tuberculosis in the community. Downes has shown that extra-familial contact has played an important part in the spread of tuberculosis in a rural community.[1]

The Massachusetts Department of Public Health recently conducted a 5 year survey on the control of tuberculosis in Berkshire County in Western Massachusetts. This county was considered to be representative of a rural community in New England and has next to the lowest death rate from pulmonary tuberculosis of any county in the state. It was during these studies that our attention was focused on the importance of extra-familial contact in the spread of tuberculosis in the community. Figure 1 is a graphic representation of the spread of tuberculosis among several families as a result of extra-familial contact. The solution of this situation required a considerable period of time and a careful evaluation of certain obscuring factors. For this reason, the circumstances and clinical facts will be described in some detail.

In March, 1935, and August, 1936, two cases of pulmonary tuberculosis were reported in a small community of approximately 4,000 persons. Both cases were high school girls, aged 18 and 16 respectively. They were the only young persons in their respective homes. Members of family "A" were examined and were found to have no evidence of tuberculosis. Family "B" refused examination at the time but were examined subsequently and found to be entirely negative for tuberculosis. There was no history of tuberculosis in either of the families as far back as they could recall. Both households used raw milk from tuberculin tested herds. The milk supply was obtained from different dairies. The two girls were not "chums" but did attend the same high school.

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EXTRA-FAMILIAL SPREAD OF TUBERCULOSIS IN A RURAL COMMUNITY

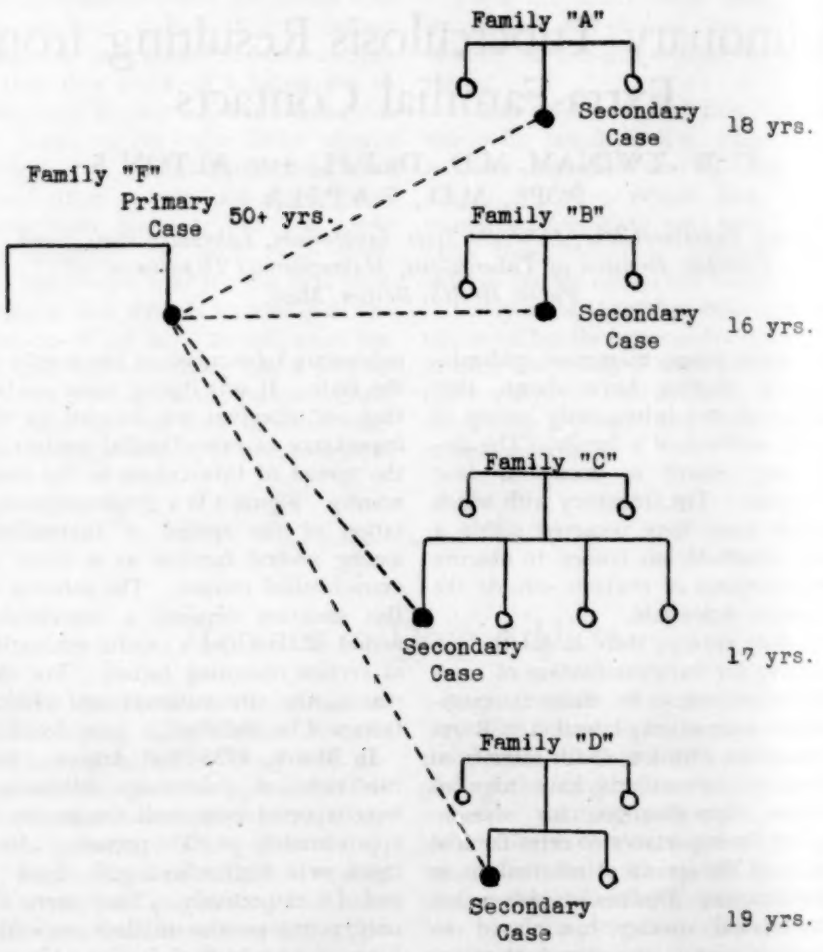

FIGURE 1

PROTOCOL

	Date of Onset Approx.	Age of Onset (Years)	Present Status of Case	Year H. S.	Sputum	Family	Choir
C. K.	March, 1935	18	Dead	1934–1935	Positive	"A"	1934–35
M. W.	August, 1936	16	Arrested	1934–1936	Negative	"B"	1935–36
S. W.	April, 1937	17	In San.	1933–1937	Positive	"C"	1935–36–37
M. H.	December, 1937	19	Dead	1933–1937	Positive	"D"	1934–37
Mrs. D.	Unknown	50+	In San.	–	Positive	"F"	1933–36

A check with the school physician gave all of the teachers a clean bill of health, with the possible exception of one. The latter had suffered from pulmonary tuberculosis two years prior, but was discharged from the sanatorium

as an arrested case. Further investigations in the community caused some doubt in the mind of the investigator regarding the teacher's physical condition, because several of the pupils complained to their parents that this teacher coughed during her classes.

The school physician made several sputum examinations, all of which were negative for tubercle bacilli. The charge that the teacher was a source of infection for the two girls did not seem justifiable in view of the repeated negative sputum reports and her denial of symptoms. Certainly the burden of proof was upon the person who said there was a causal relationship between the new cases and the teacher.

The situation rested at this stage until April, 1937, when the investigator was requested to see a patient in consultation. The patient was found to have pulmonary tuberculosis. She was a 19 year old girl who had been graduated from the same high school in 1936. Careful inquiry revealed that she had had little or no contact with either of the other girls at school. She had, however, during the time she was in school taken two courses given by the teacher who was under suspicion. A check-up by x-ray in her family revealed no evidence of active tuberculosis in any of the members, nor was there any family history of the disease. Again the evidence pointed to someone in the high school as a potential source of infection for these three girls. The teacher, aware that she was under suspicion and being somewhat embarrassed by the persistent questioning by the school physician, returned to the sanatorium outside the state for a check-up where she had formerly received treatment. A negative report was received by the school physician from the sanatorium.

Thus the situation remained until December, 1937, when a second request for consultation was received. This time the patient was another high school girl aged 17. She had pulmonary tuberculosis. She, too, had had the same teacher in some of her classes. She knew all three of the girls but denied close friendship with them. Her family was examined by x-ray by a local physician who reported negative findings. Subsequent examination of these films confirmed the original report. At this stage there seemed to be almost overwhelming evidence that these girls had had a common source of infection, and the logical place to search seemed to be in the high school.

Further revisits were made to the families for the purpose of rechecking their contact histories. All families had used raw milk from tuberculin tested herds, but only two of the families took milk from the same dairy. It was during one of the visits to family "C" that a casual remark was made relative to a certain church which opened a new approach to the problem because it was known that family "A" attended the same church. Visits were made to families "B" and "D" and it was discovered that both of them also attended this church.

This was a remarkable coincidence. A rough statistical calculation placed the church under strong suspicion on the basis that in the school population considerably less than one-half of one case would be expected to have occurred by chance among this religious denomination if the source of infection were in the school. Thus attention was directed away from the high school. Inquiries were made regarding attendance of these girls at the church, which revealed that three of them sang in the choir and that all four of them had attended social functions at the church on numerous occasions.

A careful check-up of the reported cases and deaths in the community failed to show any of them to be members of this church.

During the investigations relative to the church membership it was learned quite by accident that the wife of the former minister in this parish had developed pulmonary tuberculosis and had entered a sanatorium in another state within 3 months after leaving this parish, early in 1936. This rumor was checked and found to be authentic. In fact, at the time of her admission to the sanatorium her pulmonary condition was advanced and her sputum was markedly positive. Further inquiry revealed that the minister's wife also sang soprano in the choir and took communion from a common cup before three of the girls who sang in the choir, as well as before the fourth who was not a choir member. Thus a common source of infection was found for these four girls in their fellow church member. On the basis of x-ray, sputum examination, and statistics, the school teacher, an arrested case, was eliminated from suspicion.

DISCUSSION

Aside from determining the true source of infection for these four girls, several other factors of epidemiological significance in the spread of tuberculosis in a community are manifested. It is well known that the commonest age at which death from tuberculosis in women occurs is between the ages of 20 and 25. There is also evidence at the present time to show that the age of highest mortality from tuberculosis is gradually shifting to the older age groups.[2] In this particular instance the range in age was from 16 to 19 years. All cases were girls, again revealing the importance of sex. We have in their age and sex two factors which have to be considered as contributing toward their susceptibility to pulmonary tuberculosis. A further factor of importance so far as the spread of disease in a community is concerned is that three of these girls had positive sputum at the time the diagnosis was made. Two of them were moderately advanced and two were far advanced at the time of diagnosis. There was a high fatality rate. Two of the girls have already died from the disease, while one remains in a sanatorium, and the fourth has been discharged from a sanatorium as an arrested case.

Although three of these girls sang in the soprano section of the choir, while the fourth did not, there was ample opportunity for contact between the fourth girl and the tuberculous wife of the minister through social functions and the Sunday School. It was ascertained that these contacts were regular, usually once or twice a week, over a period of several years. The question of the use of the common communion cup is a " moot " one. It is reasonable to suppose that droplet infection through the contact at choir practice and social functions might well be sufficient to result in active disease in susceptible individuals such as girls of this age group.

The dosage of infection was probably fairly large if consideration is given to the cumulative effect resulting from frequent exposures at fairly regular intervals.

CONCLUSION

Failure to find a source of infection within a household should not preclude further attempts at finding the source case.

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New York State Mutual Aid Plan for Water Service

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THE world conflict has brought new problems to the United States. Never before have we considered our cities to be subject to bombing by an enemy force. The attack at Pearl Harbor shocked the country into sudden realization that what has happened in Europe during the past three years can happen here. We have become conscious of the fact that the wide expanse of the Atlantic and Pacific Oceans can no longer guarantee us safety from the aggressors.

It became necessary, therefore, to develop new plans for the protection of our civilian population. An important result is the plan for the protection of our public water supply systems and insurance of their prompt restoration in case of damage resulting from attack by the enemy. New York was one of the first states to inaugurate a Mutual Aid Plan for Water Service as an agency of the State War Council. Many other states throughout the country have patterned similar plans after it.

At the request of Governor Herbert H. Lehman, the New York State Department of Health and the Conference of Mayors appointed a committee of water works experts to formulate the Mutual Aid Plan for Water Service. Under the plan which was placed in operation in October, 1941, the state is divided into 22 zones which are coterminous with the boundaries of the existing state health districts, except for the separate zones comprising Westchester, Nassau, and Suffolk Counties. An outstanding water works official has been appointed as zone coördinator in each zone and the district engineers of the State Department of Health and the county sanitary engineers of Westchester, Nassau, and Suffolk Counties hold appointments as assistant zone coördinators.

AUTHORITY

At the regular session of the 1942 New York State Legislature two bills were passed which relate to the Mutual Aid Plan and provide needed authority for carrying out its objectives. One law, constituting Chapter 544, set up a State War Council with wide, sweeping powers, and established a state office of civilian protection under the jurisdiction of the State War Council. The other law, constituting Chapter 574, provided for carrying out other specific objectives of the Mutual Aid Plan.

THE OBJECTIVES OF THE PLAN

A. *In the Field of General Preparations:*

1. The interconnection of public water supply systems.

2. The interconnection of public water supply systems with *approved* industrial or other water supply systems.

3. The preparation and maintenance of accurate maps of distributing systems or revision of existing maps to an up-to-date status.

4. The preparation and maintenance

of accurate records (books or otherwise) of the location of valves and other vital parts of the system.

5. The frequent testing of valves and fire hydrants to insure that these are in proper working condition at all times.

6. Collaboration with local fire officials in regard to—

a. Surveys and preparation for use of all possible emergency sources of water supply which may require pumping into the system during an emergency.

b. The characteristics of valves and fire hydrants and the needs for hydrant adapters.

c. Surveys of distribution systems to discover defects and weaknesses, and the development of plans for their correction, together with reinforcement of systems to the maximum degree possible.

7. Collaboration with local power and other utility officials in regard to conditions that may affect operation of the water supply in an emergency, and the measures to be taken to insure ability of the water system to function in event of the failure of other utility services.

8. Collaboration with local fire and war industry officials in regard to deficiencies in water service and fire protection furnished to war industries and coöperation in correcting such deficiencies.

9. The thorough study and consideration of the needs for protection against possible water works sabotage or fifth column attacks, and the adoption of such measures as are reasonable and consistent with the needs of each particular community.

10. The preparation of a detailed inventory of water works personnel, equipment, materials and supplies, and the submission of such data to the Zone Water Supply Coördinator.

B. *In the Field of Civilian Protection:*

1. Collaboration with local war councils and local directors for the purpose of integrating the civilian protection features of the Mutual Aid Plan with the plans of local councils and local directors.

2. Technical advisory assistance on all matters related to water supply to the State Director of Civilian Protection, his deputy directors and assistants, local war councils, and local directors.

3. The organization, training, equipment, and operation of water main emergency repair crews and other auxiliary or reserve water works personnel, to function through the local water superintendent under the local director.

PLAN OF ORGANIZATION

The Governor appointed the writer as State Water Supply Coördinator with A. F. Dappert, Principal Sanitary Engineer, State Health Department, as Assistant Coördinator, to direct the carrying out of the specific objectives of the Mutual Aid Plan. The writer was also appointed Director of a Division of Water Main Emergency Repairs under the State Office of Civilian Protection of the New York State War Council, to act as technical adviser to the State Director of Civilian Protection and as directing head of the plan on all matters relating to the organization, training, equipment, and operation of emergency repair crews and other auxiliary or repair water works personnel and other matters relating to the integration of the civilian protection features of the Mutual Aid Plan with the plans of local directors of civilian protection. The work of supervision and direction is decentralized throughout the state through the offices of the zone and assistant zone coördinators in the respective areas under their supervision.

A manual for the instruction, information, and guidance of local health, water, sewer, and milk officials, and chair-

men of local war councils and directors of civilian protection has been prepared. This manual describes not only the specific plans and preparatory steps which should be taken in advance of any emergency but also the detailed emergency organization which should be developed as a part of the civilian protection services which are necessary to maintain efficiently or permit restoration of these vital services. The manual also gives technical advice for the guidance of local authorities in meeting special problems involved in the preparation for and handling of serious emergencies and the procedures on which these vital services are integrated with the civilian protection plans of each community.

As a supplement to this manual of emergency sanitation services, a bulletin has been prepared designed to serve as a guide to the local directors of civilian protection and local water officials in the organization, development, and training of auxiliary or volunteer emergency water main repair crews and other auxiliary personnel assigned to emergency water service duty. This bulletin gives a detailed outline of the qualifications required for the volunteer personnel assigned to emergency water service duty and the extent of need for such personnel. Details of training courses for the proposed repair crews and instruction methods are also outlined. The latter program has been worked out in coöperation with the Bureau of Public Service Training of the State Department of Education and Municipal Training Institute of the New York State Conference of Mayors and Other Municipal Officials.[1]

Five 3 day regional water service training schools were held throughout the state during July for the purpose of training and instructing the key municipal water works personnel in order that they may in turn be better prepared to act as instructors to the large number of volunteer and civilian emergency repair crews to be organized by the Office of Civilian Mobilization.

The Bureau of Public Service Training of the State Education Department and the Municipal Training Institute of the New York State Conference of Mayors have given the services of their organizations and officers in conducting these schools. Similarly, the New York State Section, American Water Works Association, has offered assistance. These offers are greatly appreciated and have been gratefully accepted. In fact, without such assistance it would be practically impossible to assume the responsibilities required to carry out and hold these training schools.

ACCOMPLISHMENTS TO DATE

Some of the accomplishments of the program to date may be briefly summarized as follows:

1. Of a total of 286 proposed interconnections between water systems, some 210 have been installed. These are needed wherever possible so that, in event of failure of one supply, full or partial water service may be maintained by drawing upon the other.

2. 388 communities have submitted maps of water supply distributing systems. These records should be available at all central cities in the event of any emergency.

3. 398 communities have made surveys of possible emergency water supplies. The availability of such emergency sources of water supply may be extremely vital in case of any disruption or failure of the regular source of supply.

4. 230 communities have made surveys of their water distribution systems for weaknesses. The importance of correcting any deficiencies or weakness needs no emphasis.

5. 64 communities have made special studies of water service and fire protection to defense industries.

6. 41 communities have made special studies in coöperation with power officials.

7. 79 communities have already undertaken the organization and training of auxiliary water works personnel.

8. 179 communities have given special attention to protection against possible water works sabotage.

9. 688 communities have submitted inven-

tories of water works equipment, materials, supplies, and personnel.

There is no feature of the program that is of more importance today to our municipal authorities and water works officials than the mutual aid inventory of water works material, in view of the ever increasing difficulty of obtaining critical materials which may be needed on short notice in case of emergency. The availability of this information in ready reference form makes it possible to arrange promptly for the loan of needed material and equipment. In respect to this feature of the Mutual Aid Plan for Water Service, it can be stated that it is now substantially complete and in effective operation.

In this connection, the State Coördinator, with the coöperation of a specially appointed War Inventory Committee of the New York State Section, American Water Works Association, is making a survey with a view to establishing a central pool of information on available water works material. This inventory plan is being undertaken to coöperate with the War Production Board, the Office of Civilian Defense, and the Army and Navy authorities. It is a direct result of the War Production Board's order to the water works authorities of the cities of the country having populations of 50,000 and over to curtail their inventories to the December 31, 1940, level.

IMMEDIATE PROBLEMS FOR THE FUTURE

For the next few months it is the purpose of the State-wide Mutual Aid Plan for Water Service to concentrate efforts in the direction of integrating the local water departments with the civilian protection services of each community and to secure the organization and training of water main repair crews and other water works auxiliaries who will be urgently needed in event of actual emergency.

Another important task is that of arranging to have a responsible local water official represented at the Office of the Local Director of Civilian Defense with a complete and accurate record of the water works system available. This official must assume the responsibility of arranging for such representation and for prompt attendance at practice black-out trials in order that each water works employee and organized auxiliary will be available and ready for emergencies.

The importance of having the fire departments coöperate with the water departments has been emphasized from the very beginning of our program in New York State. It has been pointed out that the fire departments have been accustomed to depend upon the availability of public water systems for the required water to fight fires, and have ordinarily given little thought to the necessity of emergency supplies. Unless there is complete coöperation and exchange of information between the fire and water departments, so that the fire departments know where the emergency supplies are and how to use them, the water departments have wasted their time in arranging for such supplies.

It must be remembered that the Army authorities hold the water works superintendent in each municipality responsible for an uninterrupted supply of water for the continued operation of defense industries. In the event of bombing it is certain that public water and sewer systems will be damaged. It is essential, therefore, that the public works departments and water departments coördinate plans through civilian protection directors for the necessary equipment and personnel for making such repairs.

While the Mutual Aid Plan is a product of the war, experience in New York State in the few months that this plan has been in operation has shown that it will be of value even in peace

time. One wonders why the plan has not previously been considered. It certainly seems to be indicated that the plan with all of its benefits to the water works of the country will be continued long after the present war.

REFERENCE

1. *J. Am. Water Works A.*, 34, 6 (May), 1942.

Mental Hygiene Service in a Rural Area

New York State Health News for October 5 reports on the Suffolk County, New York, mental hygiene program, which has now been in operation more than one year and which, according to *Health News*, has already demonstrated the advantages of a type of rural health activity in promoting the broader aspects of public health service.

According to *Health News*, the Suffolk County Mental Hygiene Division is believed to be the first in the United States organized within a county department of health. It began to function April 1, 1941. Its objectives are to ascertain local mental health problems and to devise constructive ways of meeting them. The staff consists of the Director, George M. Lott, M.D., who is a psychiatrist, and one psychologist, two psychiatric social workers, and a secretary. The mental hygiene clinics of the state mental hospitals conducted in the county continue to serve their own parole patients and community cases in their areas. The county health department mental hygiene unit is responsible for all juvenile court cases, and provides needed services to schools in outlying rural districts. The first year's service has included 250 cases, and about 500 children have been surveyed by group-testing methods. Of the school children tested, 11.5 per cent had learning disabilities, 14.5 per cent were found to be mentally deficient, and 6 per cent were neurotic. Major physical defects appeared in 5 per cent, while 33 per cent presented behavior and social problems.

Suffolk County's experience shows that the organization of a mental hygiene unit within the county department of health offers many advantages.

False Positive Phosphatase Test from a Thermophil in Pasteurized Milk

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IN 1937 the Baltimore City Health Department adopted the Gilcreas [1] modification of the Kay and Graham [2] phosphatase test. Since then a total of twenty-one false positive tests have been obtained from pasteurized milk and cream from dairy plants where the equipment and the pasteurizing procedures were found upon careful inspection to have been operated properly. Interest in these positive tests developed as the number increased and no satisfactory explanation for them could be given. Leahy and others have shown that certain strains of bacteria are capable of hydrolyzing the substrate used in the phosphatase test.[3, 2] Accordingly, these investigators have emphasized the need for caution in interpreting the results of phosphatase tests where excessive numbers of bacteria are present. Suitable control procedures for recognizing these "false positive tests" have been in use in this laboratory for several years past.*

A positive phosphatase test was obtained from bottled pasteurized milk produced by a certain dairy under supervision in November, 1941. The phosphatase reading of 0.12 mg. phenol per 0.5 ml. of milk was observed and the test remained positive after repasteurization in the laboratory.

The bacterial plate count was significantly low from 1 ml. of this milk incubated at 37° C. for 48 hours. However, the direct microscopic count gave approximately 15 million bacilli per ml. The organism observed showed a marked resemblance to *Lactobacillus thermophilus*. These findings suggested a thermophilic organism as the possible cause of the positive phosphatase test; and the problems presented seemed to warrant investigation.

The primary purpose of this investigation was to isolate the organism and study the morphological and biochemical characteristics. This work is reported below under the heading "Experimental." Attempts to ascertain if such a bacterium could produce a phosphatase enzyme in milk in a given day, during the pasteurization procedures, are reported subsequently in this paper under the heading "Bacterial Phosphatase."

Experimental

Isolation of the Suspected Thermophil

To ascertain if the suspected thermophilic bacillus was present in all pasteurized milk produced by a certain dairy and if it was in sufficient numbers to produce a positive phosphatase test, samples were requested from the beginning and the end of the pasteurizing process. These samples were divided into equal portions and were examined as received for total bacterial counts by the direct microscopic and plate methods. The two other portions were incubated at 52° C. for 19 hours and

* Unpublished data.

TABLE 1

Bacterial Counts and Phosphatase Results from Bottled Pasteurized Milk

Samples	*Direct Count per ml. of Milk*	*Plate Count per ml. at 37° C. Incubation for 48 Hours*	*Phosphatase Test* *
1. First of Run	>30,000	3,000	0.015—Negative
2. End of Run	2,400,000	420,000	0.015—Negative
			0.015—Control
	The Same Milk Held at 52° C. for 19 Hours		
3. First of Run	48,000,000	5,700	0.065—Positive
4. End of Run	60,000,000	640,000	0.14 —Positive
			0.015—Control

* Mg. of phenol per 0.5 ml. of milk, Gilcreas modification

then examined as previously stated. All four portions were subjected to the phosphatase test. The results of these examinations are given in Table 1.

As indicated by the data in Table 1, the milk sample from the first of the run with low bacterial counts and a negative phosphatase test may be considered as normal milk. The sample from the end of the run shows marked increases in the direct microscopic and plate counts, with no change in the phosphatase test. Both samples, however, when incubated at 52° C. for 19 hours gave marked increases in the direct microscopic but not in the plate counts, and produced positive phosphatase tests, indicating that a thermophilic bacillus might be the agent responsible for the change.

To obtain the suspected thermophil in pure culture, it was decided to grow the organism in tryptone broth (T.B.), as suggested by Ayers and Johnson,[4] for promoting the growth of *Lactobacillus thermophilus*. Tryptone agar was to be used for plating, and dilutions made with the T.B. so that large, well isolated colonies would be obtained. Three predominating, well isolated colonies were to be picked and transferred to tryptone broth and back to agar. Each set of the broth tubes and plates were to be incubated at the following temperatures, 37° C., 44° C., 52° C., and observed at 24 and 48 hours. This procedure was to be performed at least ten times before the organism would be considered in pure culture.

Good growth and large colonies were obtained from the broth and agar cultures respectively in 24 hours when incubated at 44° C. and 52° C. No growth was observed from those held at 37° C. The broth cultures were quite turbid in 24 hours and showed a marked sediment in 48 hours at 44° C. and 52° C. Two kinds of colonies were observed on all plates. Each kind when picked to broth and back to agar produced both kinds of colonies.

After at least ten transfers it was decided to try several media to observe colony formation. They were: (1) Old standard nutrient agar (O.S.N.A.), 1934 formula American Public Health Association[5]; (2) New standard nutrient agar (N.S.N.A.), 1939 formula American Public Health Association[6]; and (3) American Association of Medical Milk Commission's agar (A.A.M.M.C.A.).[7] All platings were incubated at 44° C. for 24 hours and observed by the Buck Colony Counter.[8]

The O.S.N.A. gave two kinds of colonies which may be classed as the pin point type. Colonies from the N.S.N.A. and A.A.M.M.C.A. were from 3 to 5 mm. in diameter, with both kinds present, the latter agar giving slightly larger colonies. These colonies will be

described presently, including a third kind under cultivation. A total of 20 transfers were now completed, the thermophilic bacillus was considered in pure culture and the morphological characteristics were therefore studied.

Morphology

The organism was found to be rod shaped, at least during the greater part of its active life. It was of relatively large size, the smallest bacillary element measuring about 1 μ in length, and the longest about 6 μ. The diameter of the bacillus was approximately 0.4 μ. Long filaments of chain formation extending beyond the microscopic field may be formed. Such long chains were never observed in commercial pasteurized milk. The agitation during the pasteurizing process in all probability would break them up into groups of a few cells (Fig. 1, Plate A). They were observed from buffered tryptone dextrose broth and agar cultures (Fig. 2, Plate A). Certain cultures, especially those from O.S.N.A. slants 48 hours old and older, showed a high degree of pleomorphism. The organism produced bizarre or involution forms that range from coccobacilli to large club shaped or pyriform bodies. The swellings occurred terminally and sub-terminally and varied in size (Fig. 3, Plate A). At first the organism was thought to be a spore-forming bacillus, but smears made from agar slants, stained for spores and examined each day for 10 days, did not reveal any conclusive evidence of spore formation. No viable transfers were obtained after 72 hours' incubation at 44° C. Cultures subjected to 85° C. for 5 minutes could not be recovered when reinoculated into broth or agar slants. Cultivation on potato also failed to reveal spores. Observations for motility were made by the usual hanging drop method, except that the B.T.D.B. culture was maintained between 45 and 48° C. while under observation. It was found to be non-motile. From very young broth cultures, 1½ hours old, the organism was found to be Gram-positive. Agar cultures 4 hours old or older were Gram-negative. Observations of very young cultures, 1½ to 3 hours old, in dark field, presented few pyriform types. Older cultures on less favorable medium showed many of these forms. They also contained many granules which suggested gonidia-like structures (Fig. 4, (c), Plate A).

Staining Reactions

The bacillus stains well with many of the ordinary dyes and procedures when the culture is not over 72 hours old. Older cultures do not take the dye so well and many organisms are seen only in outline form. They present a ghost-like appearance. Often after a culture is 48 hours old transfers fail to grow. This suggests a degeneration of the cells and may explain the poorly stained smears.

Cultivation

Observations of colony formation by the shake tube method revealed that larger colonies formed near the surface of the medium. Colonies became progressively smaller in the deeper layers of the agar. The bacillus may therefore be considered a facultative anaerobe but grows best aerobically.

As previously stated, three types of colonies were produced on agar. The largest colonies observed were obtained on a recently devised medium. It is buffered tryptone dextrose agar (B.T.D.A.).* Type A is a convex, raised, erose, translucent colony of approximately 1 to 2 mm. in diameter. Type B

* The B.T.D.A. formula is as follows: Agar 1.3 per cent (BBL.); Bacto-tryptone 1.0 per cent; potassium phosphate (K_2HPO_4) Baker's 0.1 per cent; dextrose 0.05 per cent; in distilled water. Sterilize twice, in autoclave with not over 5 lbs. pressure each day for 20 minutes or Arnoldize. Final pH 7.2 to 7.4. (Baltimore Biological Laboratories = BBL.)

PLATE A.

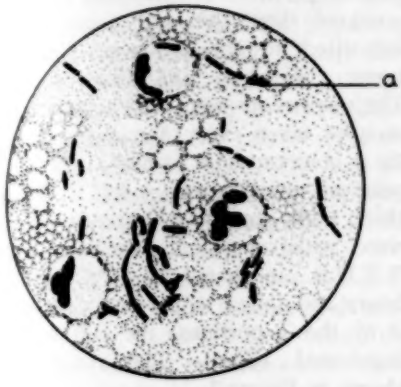

FIG. 1.

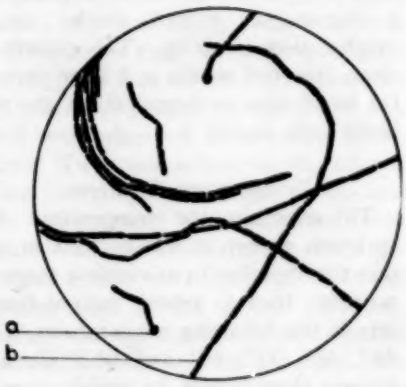

FIG. 2.

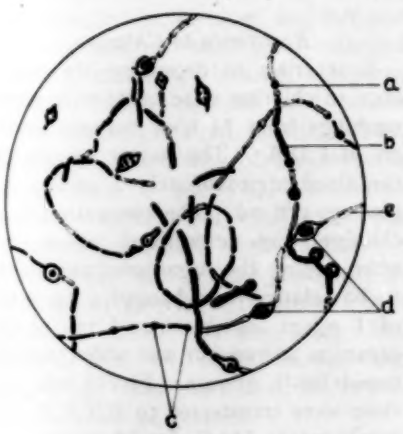

FIG. 3.

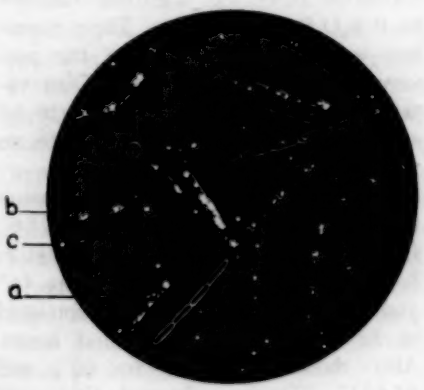

FIG. 4.

Camera Lucida drawings X 1350

is a very thin, transparent colony, ciliated, and under certain lighting gives a pale blue hue. This colony is approximately 3 to 5 mm. in diameter and is usually observed in the deeper layers of agar. Type C, a surface colony, is similar in all respects to Type A except that it is usually larger, approximately 4 to 6 mm. in diameter, not including the radial arms which may extend 1 cm. or more, depending upon the incubation period. On B.T.D.A. slants the growth is rhizoid, transparent, and somewhat difficult to observe with the naked eye, especially young cultures.

Broth cultures (B.T.D.B.)* are tur-

* Formula the same as B.T.D.A. except that agar is omitted.

bid, with some settling after 24 hours. Type C colony in broth often produces a filamentous growth similar to a tangled piece of string. This growth is often observed within a 2 hour period. On blood agar no hemolysis of the red blood cells occurs.

Temperature Relations

To ascertain the temperature for optimum growth it was decided to obtain the organism in as viable a stage as possible; then to submit culture transfers to the following temperatures, 37°, 44°, 48°, 52°, 60° and 62.5° C., and observe them hourly for visible growth, with the exception of the overnight period.

Rapid transfers were made by inoculating B.T.D.B. twice a day, at 9 A.M. and 5 P.M., for two days from cultures incubated at 44° C. Eighteen transfers to B.T.D.B. were made. Three transfers were then incubated at the previously stated temperatures. Observations for growth were made hourly by comparing the inoculated tube with an uninoculated control.

No growth was observed in 24 hours from the 3 transfers incubated at 37° C. Growth was observed within 2 hours in 5 of the 6 transfers incubated at 44° and 48° C. All 3 transfers submitted to 52° C. showed growth in 3 hours. Also those submitted to 60° and 62.5° C. However, the turbidity noted in these tubes incubated at the two latter temperatures were not as heavy. The temperature for optimum growth may be tentatively placed at about 52° C.

Thermal Death Point

The thermal death point was determined by the Chick * method, except that the 18 hour B.T.D.B. cultures were diluted in 10 ml. of broth so that direct counts of approximately 1 million organisms per ml. were obtained for each series of three thin wall tubes to be submitted to the following temperatures: 64°, 64.5°, 65°, and 66.1° C. The suspensions were well agitated and samples taken every 5 minutes during the 1 hour exposure to heat. The temperature variation was ± 0.2° C. When three 1 ml. portions of exposed culture were withdrawn and inoculated into B.T.D.B., incubated at 44° C. for 24 hours and failed to produce growth in 3 of the 3 portions, the culture was considered killed. The results are shown in Figure 1.

From the data presented in Figure 1, it may be seen that temperatures of 64° C. for 48 minutes, 65° C. for 30 minutes, and 66.1° C. for 18 minutes apparently destroyed the organism.

Resistance to Chlorine

Four trials to determine the resistance to chlorine were made with water washings from 24 hour cultures grown on B.T.D.A. The water suspension contained approximately 1 million organisms per ml. The concentration of chlorine was determined before and after adding the organisms, and found to be relatively unchanged. To 9 ml. of 1 p.p.m. of chlorine, 1 ml. of the organism suspension was added and exposed for 1 minute. Five 1 ml. portions were transferred to B.T.D.B. and incubated at 44° C. for 24 hours.

No growth was obtained from 20 such transfers and it was concluded that chlorine in a concentration as low as 1 p.p.m. was effective in destroying the thermophilic organism in 1 minute.

Maintenance

The organism may be satisfactorily maintained by transferring every 24 or 48 hours into B.T.D.B. or skim milk. The Cryochem process [9] used with skim milk has maintained the organism for over 30 days.

* *The Theory of Disinfection. A System of Bacteriology*, Medical Research Council, London, 1:178, 1930.

Biochemical Reactions

The fermentative reactions were studied in a basal medium containing Bacto peptone 1 per cent, Bacto beef extract 0.3 per cent, and carbohydrates 0.5 per cent in distilled water, sterilized by autoclave with no pounds pressure on two consecutive days. The final pH was 7.4. Chlorphenol red was employed in 0.0024 per cent concentration as the indicator. The carbohydrates were inoculated from an 18 hour B.T.D.B. culture in the usual manner and incubated at 44° C. for 10 days before the final observations were recorded. Rubber caps were placed over the cotton stoppers to prevent evaporation of the media. In four successive trials fermentation with the production of acid but no gas was obtained from lactose, dextrose, mannose, saccharose, maltose, galactose, xylose, levulose, and raffinose. No acid was produced from mannitol, giycerol, arabinose, inositol, rhamnose, dulcitol, inulin, sorbitol, and salicin. Indol was not produced. Lactic acid was formed.* The ability of the organism to produce a bacterial phosphatase enzyme is explained in detail below. The organism produced slight acidity in litmus milk with no coagulation. No evidence of growth was observed from gelatine. Direct smears made and stained after 24 hours showed that growth had taken place in all media with the exception of gelatine.

Pathogenicity

To ascertain whether the organism was pathogenic for animals, or any toxic substance was produced in 48 hour broth cultures, the following procedures were carried out: Agar slant washings in 0.85 per cent NaCl and B.T.D.B. cultures containing approximately 1 billion organisms per ml. were injected intravenously, intraperitoneally, and intracutaneously into rabbits, intraperitoneally and intracutaneously into guinea pigs and mice. Three animals were used for each test and the dosage varied from 1 to 0.1 ml. In this series of tests no illness or symptoms of any kind were observed for a period of 21 days. Twenty-four hour broth cultures were centrifuged at 2,000 r.p.m. and the supernatant fluid injected into animals as previously stated. No abnormal results were observed from the animal used in this series. The organism was repeatedly isolated from the pasteurized milk of a certain dairy during a 2 month period. No illness was reported from the consumption of this milk upon inquiry by the Bureau of Milk Control.

Frequency of Occurrence

The frequency of occurrence of this organism in pasteurized milk and milk products has been partially investigated. It has been isolated from pasteurized milk, cream, and skim milk of four Baltimore dairies. These isolations were obtained, oddly enough, during the winter months. Since then routine thermophilic platings have been made totaling 103 milk and cream samples. From these, 9 thermophilic organisms have been isolated. However, none of these strains have produced the bacterial phosphatase enzyme.

Identification

With the morphological and biochemical reactions obtained, identification of the thermophilic bacillus was attempted. Beaver [10] identified 23 thermophils, and a survey of the literature to 1942 disclosed some 167 strains reported in all. From careful study this thermophilic bacillus does not completely correlate morphologically or biochemically with any of them. It does, however, possess many characteristics of the Lactobacilli, especially *Lactobacillus thermophilus*, but several

* The Friedmann method was employed. *A System of Bacteriology in Relation to Medicine*, 9:144, 1931.

strains of the latter organism when tested failed to produce the bacterial phosphatase enzyme. As this organism appears to be a new strain of the Lactobacillus group the name *Lactobacillus enzymothermophilus* is suggested.

BACTERIAL PHOSPHATASE

Production of the Bacterial Phosphatase

To determine the production of the bacterial phosphatase enzyme with a minimum of interference from culture media, etc., it was decided to proceed as follows: Agar slant cultures were grown at 44° C. for 24 hours. The agar washings were performed as rapidly as possible by forcing the distilled water out of the pipette with a rubber bulb and withdrawing it quickly without disturbing or touching the agar. The control suspension was distilled water in contact with uninoculated agar for twice the time it required to make the bacterial suspension. A direct count gave approximately 50 million organisms per ml. of the suspension. The suspension was then centrifuged at 2,000 r.p.m. for 35 minutes. The supernatant fluid was removed and the organisms resuspended in as small a quantity of distilled water as would permit rapid pipetting. The suspension was then added to milk (negative to the phosphatase test) so that each ml. contained approximately 50 million organisms. In addition, 10 ml. of the suspension was placed in a mortar and ground aseptically with broken glass for approximately 2 hours. Some of the suspension was also resuspended in sterile distilled water. The phosphatase tests obtained on these samples are reported in Table 2.

From the data given in Table 2, it may be seen that there was a negligible difference in the phosphatase units of control number 1 and control number 8. The unwashed, the washed, the ground, the washed and ground organisms all gave negative phosphatase tests. The supernatant fluid in the milk and the supernatant fluid alone gave positive phosphatase reactions of 0.07 and 0.20 Gilcreas units respectively, indicating that the phosphatase of this thermophilic bacillus is extractable.

Effect of Variation in Temperature Upon Bacterial Phosphatase

It seemed advisable to determine the effect upon the phosphatase of temperatures above those usually employed for pasteurization, because, if the enzyme is thermostabile, no control for the

TABLE 2

Phosphatase Tests on Inoculated Samples

Values in Gilcreas Units

No. Samples	*Kind of Sample*	*Phosphatase Units*
1	Normal pasteurized milk (control)	0.01 Negative
2	Normal pasteurized milk containing 50 million unwashed organisms per ml.	0.03 Negative
3	Normal pasteurized milk containing 50 million washed organisms per ml.	0.02 Negative
4	Normal pasteurized milk containing approximately 50 million organisms ground in glass per ml.	0.02 Negative
5	Normal pasteurized milk 9 ml. containing 1 ml. of supernatant fluid from washed organisms	0.07 Positive
6	Distilled water containing washed and ground organisms	0.01 Negative
7	Fluid from washed organisms	0.20 Positive
8	Distilled water in contact with sterile agar (control)	0.02 Negative

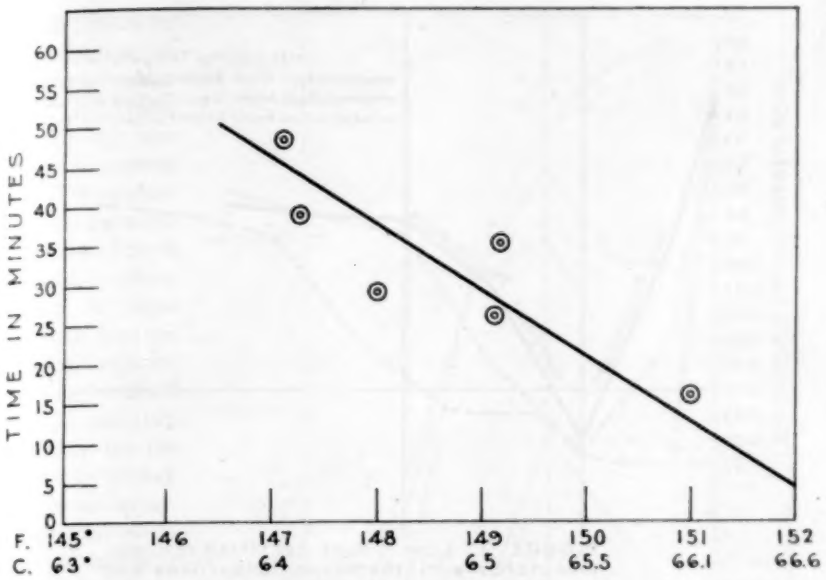

FIGURE 1. Effect of variation in temperature upon thermophilic bacillus.

phosphatase test seemed available. Conversely, if the bacterial phosphatase is thermolabile at temperatures close to or above the pasteurizing point, the significance of controls for the test became apparent. The latter was found to be the case, as the enzyme is destroyed at 85° C. and after boiling for 1 minute.

Production of Bacterial Phosphatase in Milk

To determine the production in the laboratory of the bacterial phosphatase in milk at pasteurizing temperatures that would at the same time parallel as closely as possible the commercial pasteurizing procedure, the following conditions were set up:

1. The maintenance of temperature within ± 1° F.
2. The preheating period of 20 minutes
3. The constant agitation of the milk
4. The prevention of foam

The apparatus assembled consisted of a 10 gallon stainless steel pot containing water. A sterile, paper covered, 2 liter pyrex beaker was securely wired to a ring stand and submerged in the water to within 2 inches of its top. Motor driven stirrers with sterilized propeller blades were placed in both the beaker and the water. Thermometers were held in place by clamps in the water and in the beaker. The temperatures were checked with a Bureau of Standards certified thermometer. A liter of low-count certified raw milk was placed in the beaker at 42° F. and the culture added so that each ml. of milk contained approximately 10,000 thermophilic organisms. The milk was then brought to pasteurizing temperature by gas flame in approximately 20 minutes. Samples were withdrawn every 10 minutes for the first 30 minutes and thereafter at hourly intervals as shown in Figure 2.

The data shown in Figure 2 give the results of three trials of certified raw milk inoculated with the thermophilic organism and pasteurized for over 5½ hours. The broth culture pasteurized

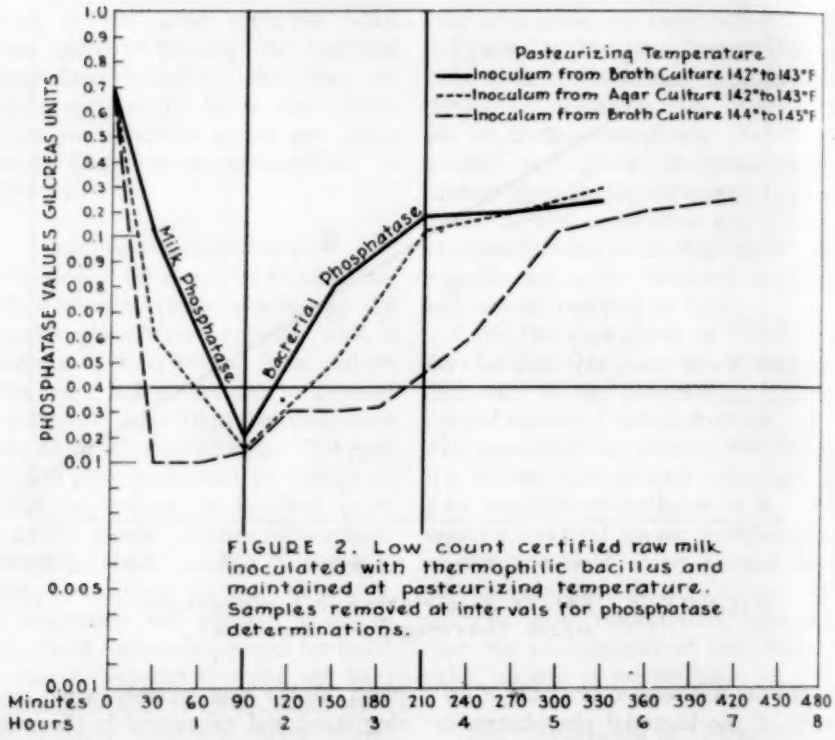

FIGURE 2. Low count certified raw milk inoculated with thermophilic bacillus and maintained at pasteurizing temperature. Samples removed at intervals for phosphatase determinations.

at 144° to 145° F. shows the destruction of the milk phosphatase to below the normal Gilcreas value of 0.04 within the 30 minute time period. The production of the bacterial phosphatase is observed after the inoculated milk had been pasteurized for 90 minutes. This may be considered a critical ordinate, as the production of the bacterial phosphatase begins at this time. During the next 30 minutes, 0.025 bacterial phosphatase units are produced, with no noticeable increase for the next 1 hour period. The total pasteurizing time was 3 hours for this production. There was no significant production of the bacterial phosphatase for the 120 to 180 minute period. The production during the next two periods of 1 hour each is rapid, and 0.06 and 0.12 phosphatase units respectively are produced. The total bacterial phosphatase produced during a 6 hour period of pasteurization was from 0.01 to 0.19 units for this trial. It should be noted that milk pasteurized for 3½ hours gave a doubtful or 0.048 phosphatase test.

The other two trials, pasteurized at 142° to 143° F., do not show the complete destruction of the milk phosphatase within the 30 minute pasteurizing period. The agar and broth culture inoculums, however, correlate the findings of Burgwald [11] and others who have established 0.12 to 0.15 Gilcreas units for pasteurizing milk at 142° F. for 30 minutes. Burgwald in one trial reports 0.04 Gilcreas units at 142° F. for 40 minutes. These results are pointed out because samples were not obtained for the phosphatase test between the 30 and 90 minute periods. Straight lines were used to connect these points, and it is therefore obvious that they would have fallen below the normal 0.04 value sooner had samples been tested. The

critical ordinates for the production of the bacterial phosphatase for these two trials are also after the 90 minute period. The production of the bacterial phosphatase from the broth culture inoculum is more rapid than that of the agar culture. The values obtained were 0.08 and 0.05 respectively for the 150 minute period. There is no apparent lag period at this pasteurizing temperature as there was for the 144° to 145° F. trial between the 120 and 180 minute period. The production of the bacterial phosphatase at this temperature is more rapid. Positive phosphatase tests of about 0.05 units from the broth and agar cultures at 120 and 150 minute periods respectively were obtained. The production of 0.1 and 0.15 phosphatase units, broth and agar cultures respectively, were obtained for the two trials at the 210 minute period. A slight but not significant amount of bacterial phosphatase is produced after this time period.

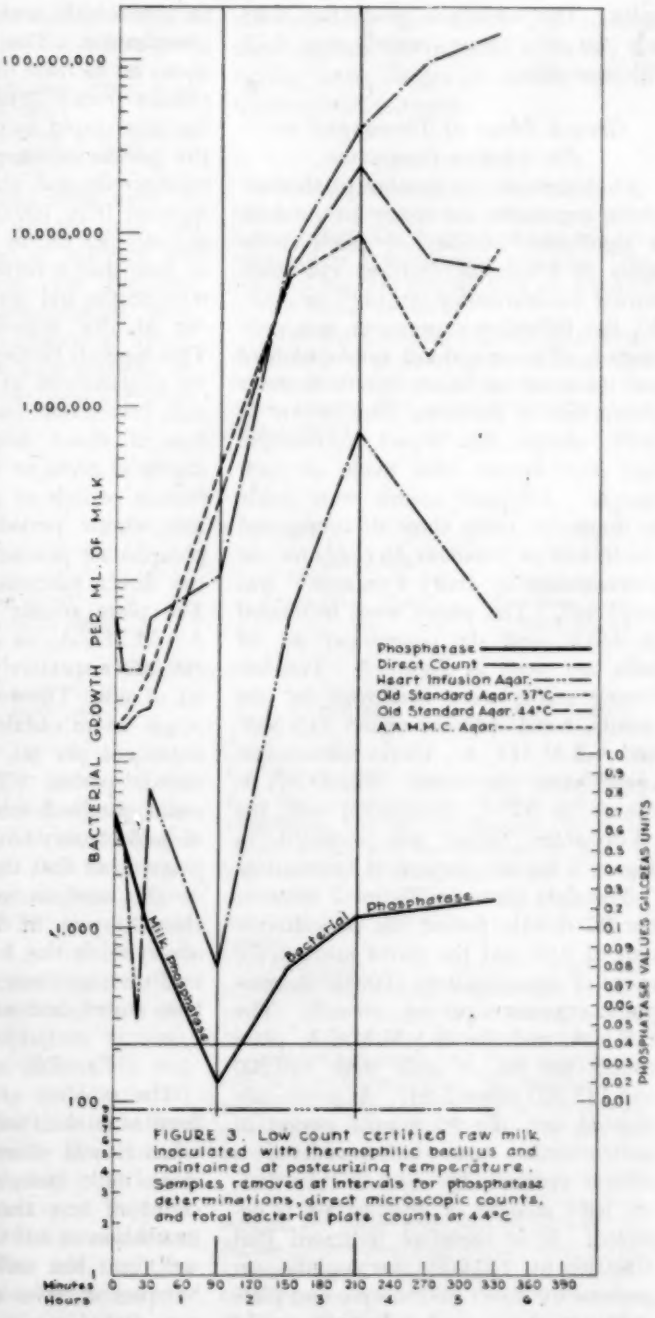

FIGURE 3. Low count certified raw milk inoculated with thermophilic bacillus and maintained at pasteurizing temperature. Samples removed at intervals for phosphatase determinations, direct microscopic counts, and total bacterial plate counts at 44°C

The average production of bacterial phosphatase for the three trials in the critical 2 hour period was 0.14 Gilcreas

units. The maximum production during the 5½ hour period was 0.25 Gilcreas units.

Growth Phase of Thermophil to Phosphatase Production

To determine the number of thermophilic organisms necessary to produce a significant number of phosphatase units in low-count certified raw milk during pasteurization at 142° to 143° F., the following experiment was conducted. The procedures employed here are the same as those described under *Production of Bacterial Phosphatase in Milk*, except that direct microscopic and plate counts were made on each sample. All plate counts were made in duplicate, using three dilutions, and the technic of *Standard Methods for the Examination of Dairy Products* [12] was employed. The plates were incubated at 44° C. and the counts per ml. of milk are given in Figure 3. The following media were employed for the counts, heart infusion agar,* O.S.N.A. and A.A.M.M.C.A. Direct microscopic counts were also made. The O.S.N.A. counts at 37° C. incubation and the phosphatase curves are included in Figure 3 for the purpose of orientation.

The data given in Figure 3 show at the 90 minute period the phosphatase unit of 0.02 and the direct microscopic count of approximately 100,000 thermophilic organisms per ml. of milk. The O.S.N.A. and the A.A.M.M.C.A. plate counts per ml. of milk were 130,000 and 145,000 respectively. As previously pointed out, the 90 minute period of pasteurization may be considered a critical ordinate because at this time, the least amount of phosphatase is detected. It is therefore indicated that 100,000 to 140,000 thermophilic organisms by direct microscopic and plate counts have not produced at this period an appreciable amount of the bacterial phosphatase. The 150 minute period shows an increase of the bacterial phosphatase from 0.02 to 0.08 units, which is the most rapid increase during the entire pasteurization process. The direct microscopic and plate counts show an increase from 100,000 to 3,200,000 organisms per ml. of milk. It is curious to note that a correlation of the direct microscopic and plate counts should occur at this period of pasteurization. This suggests further investigative work, for explanations as to the non-correlation, correlation, and again non-correlation of direct microscopic and plate counts as given on the 90, 150, and 210 minute periods of pasteurization. The 210 minute period shows a bacterial phosphatase production of 0.2 units and the direct miscroscopic of 39,000,000. The plate counts from O.S.N.A. and A.A.M.M.C.A. of 25,000,000 and 9,500,000 respectively were obtained per ml. of milk. The maximum direct microscopic count obtained was 150,000,000 organisms per ml. of milk at the 330 minute period. The maximum plate count obtained was 25,000,000 per ml. of milk from O.S.N.A. It should be pointed out that the size of the colonies on this medium were quite small, less than 0.5 mm. in diameter, while those observed on the A.A.M.M.C.A. were 3 to 5 mm. in diameter as has previously been stated, and were easily counted.

The Rôle of Skim Milk

The rapidity of the growth of this bacillus in skim milk became significant when it was observed that low count skim milk inoculated gave a direct count of less than 30,000, but after incubation at 44° C. for 6 hours, counts well into the millions were obtained. Samples of skim milk from the dairy were therefore requested for the following reasons:

1. To ascertain if the thermophilic bacillus was present in the skim milk.

* The heart infusion agar counts are not discussed as they were too low in numbers for correlation purposes.

2. Would the skim milk contain the bacillus in such numbers as to produce a false phosphatase test?
3. Was it obtained from route return whole pasteurized or from raw milk?
4. Was the skim milk being used in other milk products and for standardization?

Two samples of skim milk were received. They were divided into two equal parts. One set of samples was examined immediately for bacteriological counts and phosphatase tests. The other set was incubated at 52° C. for 19 hours and the examinations repeated. The results obtained are given in Table 3.

TABLE 3

Skim Milk as Received

Sample Number	*Direct Count per ml.*	*Standard Plate Count per ml. at 37° C. 24 hrs.*	*Phosphatase Test Gilcreas Units*
1.	180,000 many bacilli present	760	0.025 negative
2.	600,000 many bacilli present	290	0.03 negative
	Skim Milk after 19 Hours at 52° C.		
1.	6,000,000 many bacilli present	Not made	0.20 positive
2.	6,500,000 many bacilli present	Not made	0.15 positive

The direct microscopic count and the phosphatase test would indicate that the thermophilic bacillus was present in the skim milk and that it had been pasteurized. The skim milk when incubated for 19 hours at 52° C. produced sufficient organisms to give false positive phosphatase tests, and repasteurization of the samples in the laboratory did not destroy the phosphatase enzyme. This suggests that the skim milk was obtained by separating route returned bottled pasteurized milk, which was confirmed by the Health Department inspector and the dairy plant proprietor. It would seem logical to expect that the continuation of this practice would act as a continuous inoculum and result in a marked increase of these organisms in the bottled product. The simple practice of continued reinoculation of raw milk with skim milk obtained from route returned pasteurized milk for standardizing the butter fat content may explain the marked difficulty of ridding some dairies of thermoduric or thermophilic bacteria.

CONCLUSIONS

1. A false positive phosphatase test was obtained from properly pasteurized commercial bottled milk. The bacterial phosphatase was produced by a thermophilic organism. This organism has been isolated from the products of four Baltimore dairies.

2. The morphological, biochemical, and cultural reactions of this organism indicate that it belongs to the genus Lactobacillus. The name *Lactobacillus enzymothermophilus* has been suggested.

3. The bacterial phosphatase was extracted from the organism with distilled water. A phosphatase test of 0.20 Gilcreas units from 0.5 ml. of the fluid was obtained by washing approximately 50 million organisms in 10 ml. of distilled water. This bacterial enzyme was destroyed after exposure to 185° F. for 1 minute.

4. Production of the bacterial phosphatase in milk at pasteurizing temperatures of 142° to 144° F. begins after a 90 minute holding period. Two hours after the start of the enzyme production at 142° F. a phosphatase test of 0.20 Gilcreas units was obtained. At the 144° F. temperature a lag in the enzyme production is noted for 180 minutes, and the production thereafter is rapid.

5. The factors governing the production of the bacterial phosphatase are the inoculum number, the temperature and the time period. In one pasteurizing trial at 142°–143° F. for 150 minutes the direct microscopic, Old Nutrient Standard agar, and the American Association of Medical Milk Commission agar counts correlate to give approximately 3,200,000 bacteria per ml., and a phosphatase test of 0.08 Gilcreas units per 0.5 ml. of milk was obtained. The maximum direct micro-

scopic count of 150 million organisms per ml. of milk was obtained after 5½ hours of pasteurizing milk at 142°–143° F. and the phosphatase test gave 0.25 Gilcreas units per 0.5 ml. of milk.

6. It is an established fact that skim milk is an excellent culture medium. The rapid growth of this organism in skim milk and other media at favorable temperatures, 112° to 126° F., is readily observed within 1½ hours *in vitro* from rapid transfers. It has been shown that skim milk obtained from a dairy plant and used for standardizing, produced a false positive phosphatase test when the thermophilic organisms were in sufficient numbers. Raw milk heated for separating may be a contributing factor for promoting the growth of this and other thermophils. The practice of separating route return pasteurized milk for standardizing with thermoduric or thermophilic organisms present may be considered as a continuous reinoculation process. This practice may explain many positive phosphatase tests attributed to manual and mechanical defects in the dairy plant, when actually the false positive phosphatase test has been produced by a bacterial phosphatase enzyme from a thermophilic organism.

COMMENT

In studying the so-called "phosphatase test" as a control procedure for pasteurized milk, it has been learned that the milk phosphatase in raw or improperly pasteurized milk is a different substance from bacterial and other phosphatases that may be present in properly pasteurized milk where there has been a growth of non-pathogenic thermophilic organisms. Care is therefore necessary in distinguishing among the phosphatases where the phosphatase test is used in milk control work and where a false positive test due to a bacterial phosphatase may lead to a misinterpretation of the laboratory findings.

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A Method for Determining the Number of Beds Required for Convalescent Care of Rheumatic Infections

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PROLONGED canvalescent care for those recovering from rheumatic episodes is proving itself the best method available for combating that most serious manifestation of the rheumatic syndrome—rheumatic heart disease.[1] Provision of adequate convalescent facilities in London has apparently resulted in a reduction of the incidence of organic acquired heart disease from 2.0 per cent in 1926 to 0.8 per cent in 1936.[2] An increasing awareness of the need for facilities and for organization of convalescent care similar to that in England is manifest in this country.[3]

In view of the prospect that public health organizations will become aroused to plan for similar care of our rheumatic population, there is need for a method to estimate how many beds would be necessary in given communities in different parts of the United States. In England, when the London Rheumatism Scheme was organized in 1926, there was no clear idea of the exact number of beds required, but it was judged that an average of 6 months' care should be provided for every child with rheumatic infection. Facilities were slowly expanded until that ideal was reached. It was found that 1 bed per 550 * elementary school children permitted adequate convalescent care to be given rheumatic infections in that age group.[3a, 5] Another estimate was 6 to 8 beds for school children per 100,000 total population.[6] This latter method is a combination of American and British ideas. The British component was based on the assumption of 1 year's convalescent care during a 25 year duration of rheumatic infection with a known mortality of 149 persons per 100,000 in England and Wales.[7] Thus 6 beds in 25 years would provide for 150 patients.

Both ratios have been used recently in the United States to estimate needs for convalescent care in two of our largest cities; the 1:550 ratio by Swift [3a] in New York City, and the 6 to 8 per 100,000 ratio by Hedley [8] in Philadelphia. These methods yield very divergent estimates. The former method calls for a far larger number of beds than does the latter. Furthermore it is obvious that any method of estimating beds based on school population, total population, or mortality cannot be applied throughout the United States because of well known regional differences in incidence [9] and mortality [10] of rheumatic infections.

The alternative method of starting on a small scale and expanding facilities slowly to meet the demand, as suggested by Huse,[11] is safe and apparently eco-

* An earlier estimate was 1.7 beds per 1,000 children.[4]

nomical, but it deprives many persons of needed care during the period of expansion. If convalescent care is as beneficial as we hope it is, such a procedure may not be economical in the long run.

How then is the necessary number of convalescent beds to be estimated in various localities of this country, if the ratios derived in England cannot be applied? We believe this can be done by using a 1:2 ratio, namely, 1 bed for every 2 rheumatic cases hospitalized annually in the community.

THE SITUATION WHICH PERMITS EVOLVEMENT OF THIS 1:2 RATIO

Cincinnati is unusual in that there is adequate convalescent care available for white rheumatic children aged 2 to 12. This care is provided by the Children's Convalescent Home of Cincinnati which was opened in 1931 to provide convalescent care for cardiac, orthopedic, post-operative, post-communicable disease and malnutrition cases.[12] Children are admitted from hospitals, clinics, and all child welfare agencies in the city and Hamilton County. It is supported by funds from the Community Chest and admits white children of both sexes from 2 to 12 years of age, inclusive. There are a few children 13 to 15 years old. No facilities are provided for the care of colored children. This institution has 100 beds, with an average daily census of 80.

During 1931–1940 there was a total of 2,614 admissions to the Children's Convalescent Home for all causes, of which 13 per cent were for rheumatic conditions. At no time were the facilities strained, and it can be said that all white children aged 2 to 12 who required care for a rheumatic condition were in a position to receive it. This applies particularly to children of the poorer classes. Some children, of course, did not receive this care when they needed it because of unwillingness of parents to place them in an institution. Others may not have received it because some physicians are unaware of the benefits of convalescent care. However, these factors operate in every community, and we believe that facilities for care of this particular age and racial group are quite adequate in Cincinnati. The proportion of the rheumatic burden borne by this institution is indicated by the fact that 56 per cent of all patient-days for rheumatic admissions in all Cincinnati hospitals during 1930–1940 were spent at Children's Convalescent Home.

PROCEDURE IN OBTAINING THE 1:2 RATIO

The authors have recently completed a survey of all hospital admissions for rheumatic infections in Cincinnati for the 11 year period 1930–1940.* During this time 515 white patients under 13 were admitted with rheumatic infections to all Cincinnati hospitals, or 47 per year. In the 10 years (1931–1940) of operation of Children's Convalescent Home, 268 white children under 13 were admitted to that institution with rheumatic infections. On each admission, the average stay was 233 days. Including readmissions, during these 10 years each child was in the home 286 days, or a grand total of 76,763 patient-days. When this total is divided by 365 days, the quotient is 210. This means that 210 beds, or 21 beds per year, were constantly occupied by patients convalescing from rheumatic episodes. To keep an average of 21 beds per year in constant use, about 24 available beds (88 per cent occupancy) would be required. Thus, over a 10 year period, 24 beds per year at Children's Convalescent Home were needed in relation to the 47 cases among white children under 13 admitted

* *Rheumatic Heart Disease, Rheumatic Fever, and Chorea.* To be published.

annually to Cincinnati hospitals. Therefore, to provide adequate convalescent care, 1 bed for convalescents should be available for every 2 hospital cases of rheumatic infection per year.

It should be recalled at this point that, when the Rheumatism Scheme was organized in London, the preliminary estimate was an average of 6 months' care for each rheumatic child. Here in Cincinnati where no preliminary estimate was made, but convalescent care provided freely as needed, the same ratio emerges from 10 years of experience, *i.e.*, 1 bed for every 2 cases, or, in other words, an average of 6 months' care for each case. Actually, not every case comes in for care, and some stay less than 6 months and some more. In Children's Convalescent Home every rheumatic admission averaged 8 months. This compares favorably with the average care given in other localities—8 months in Boston,[18] and 8.3 months in New York.[1c]

APPLICATION OF THE 1:2 RATIO

Thus, if a community were contemplating provision of convalescent care for its rheumatic children, a survey over a 2 to 3 year period should be made of cases admitted for rheumatic conditions to hospitals of that community. If any considerable number of patients were admitted to more than one hospital, such duplications should be eliminated. The average number of cases admitted per year in the age group for which care is contemplated should be obtained, and 1 bed provided for every 2 cases.

For example, in Philadelphia there

TABLE 1

Estimate of Convalescent Needs by Three Methods

	1:2 Ratio		*1:550 Children*		*7 per 100,000 Population* [h]
City	*Annual Rheumatic Hospital Cases Under Age 15*	*Beds Needed Under Age 15*	*Children Age 7 to 15* [d]	*Beds Needed Age 7 to 15*	*Beds Needed Under Age 16*
New York City	3,116 [e]	1,558	1,037,539 [e]	1,886 1,760 [f]	522
Philadelphia	383 [b, g]	192	305,322	555	135 203 [i] 200 [b, i]
Cincinnati	66 [k, c]	33	59,334	108	32 44 [j] 55 [i]

a. Approximately 2,181 hospital cases under age 14 with rheumatic heart disease (cf. Swift,[3a]) on the assumption that R.H.D. is 70 per cent of all rheumatic infections under age 15 (Cincinnati 67 per cent; Philadelphia 71 per cent).
b. For 1930–1934, cf. Hedley [8]
c. For 1930–1940, data to be published by the authors
d. 1930 Census
e. Including Bronx, Brooklyn, Manhattan, Queens, Richmond
f. For children under 16; cf. Swift [3a]
g. An undetermined number outside of Philadelphia proper, but in the metropolitan district
h. 1940 Census
i. For the metropolitan district
j. Hamilton County, served by Cincinnati hospitals
k. An undetermined number outside of Cincinnati proper, but in Hamilton County

was an average of 383 cases of both white and colored children under 15 with rheumatic conditions admitted to hospitals per year over a 5 year period.[8] To provide convalescent care for Philadelphia's rheumatic children under 15 alone would require 192 beds.

Examples of difficulties that arise when the English ratios are applied to American communities may be seen in Table 1. In Cincinnati the ratio of 1 bed for 550 elementary school children would provide Cincinnati with 108 beds, not the 33 which we know would be ample for both races under 15 years in an average year. Use of the ratio of 7 beds per 100,000 population would give Cincinnati 32 beds if the population of the city alone were used, but 44 if the population of Hamilton County were considered.

In Philadelphia the 1:550 ratio would provide 555 beds. Hedley made his estimate on the basis of the ratio 6 to 8 per 100,000 population and obtained 200 beds. The 1:2 ratio estimates 192 beds, in good agreement with Hedley's figure.

However, in New York City, Swift made his estimate with the 1:550 ratio and obtained 1,760 beds. A calculation based on 7 beds per 100,000 population, as used by Hedley, yields only 522 beds. Our estimate based on the 1:2 ratio is 1,558 beds, which is reasonably close to Swift's figure.

The 1:2 ratio is the one method which consistently approaches the estimates of Swift and Hedley. Yet if each had used the other's method of estimation the results would have been different. Actually each author used the method which worked best for the city under consideration.

The experience in London further verifies the applicability of the 1:2 ratio. In 1926, during the early stages of organization of the London Rheumatism Scheme, there was an estimate of 2,038 children[4] admitted annually to London hospitals with rheumatic infections. By 1936, 1,100 convalescent beds had been provided.[6] This is essentially 1 convalescent bed in 1936 for every 2 cases hospitalized in 1926.

DISCUSSION

It should be emphasized that convalescent facilities in Cincinnati are adequate only for the limited group under consideration, white children aged 2 to 12. The only other institution in the city which has significant convalescent facilities is the Hamilton County Chronic Disease Hospital. Although designed to care for the indigent aged, it also serves for a few cases as a place for convalescence for white patients over the age of 12 and for Negroes convalescing from rheumatic infections. However, these facilities are unsuitable and inadequate. There is an acute need in Cincinnati for convalescent beds for Negro children and for all young adults. We estimate the number of beds necessary for Negro children as 6. The convalescent needs of young adults will be discussed in a future publication.

Before applying the 1:2 ratio, a community survey of hospital cases of rheumatic infections is necessary. Some may object to the expense incurred by a survey. In reply it can be pointed out that the cost of a convalescent institution may be as high as $4,000 per bed.[2]

Communities using the 1:2 ratio would be unlikely to provide too many beds but might provide too few. This would happen if most acute episodes of rheumatic infection were treated in the home rather than in a hospital. It could also occur if, after a survey had been made, an increasing awareness of the seriousness of rheumatic infections caused more cases to be recognized and hospitalized.

It is important to realize that the adequacy of recognition of rheumatic infections in Cincinnati has little to do

with the validity of the 1:2 ratio. Since available facilities at Children's Convalescent Home have never been saturated, any increased number of rheumatic cases admitted to hospitals would simply have been reflected by increased admissions to the home, in the same 1:2 ratio as at present.

SUMMARY

There is an increasing awareness in the United States of the value of convalescent care for rheumatic infections, and of the lack of such facilities in this country. A method is needed to determine the number of beds required for convalescent care in a given community. Over a 10 year period the facilities for the care of rheumatic white children aged 2 to 12 have never been saturated at the Cincinnati Children's Convalescent Home. A survey of admissions to all Cincinnati hospitals has revealed the total number of these children, and the total patient-days spent by them at Convalescent Home. Based on this experience it has been found that 1 convalescent bed was required for every 2 cases admitted to Cincinnati hospitals. It is suggested that this 1:2 ratio be considered by communities intending to expand their facilities for care of convalescent rheumatic children.

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Some Epidemiological Aspects of Tooth Decay*

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EXPERIENCE in the present war and in those of the past, together with related incidental data, offer opportunity to examine, on a geographic basis, certain epidemiological aspects of tooth decay. From an etiological standpoint, knowledge as to this disability is about on a par with speculations in the early part of the century as to the etiology of pellagra or knowledge as to the causation of malaria before Laveran's work in 1880.

Generally speaking, there are two schools of thought regarding the etiology of tooth decay. The first group considers the oral environment the sole determining factor, while the second group considers that the metabolic processes of the body influence the resistance of the teeth to the force or forces which cause decay. Whatever the merits of these or other hypotheses, they have no bearing on the present discussion.

The data herein presented for consideration consist of: (1) the rejection rates for "defective and deficient" teeth among the men in the draft for the United States Army in 1918; (2) exemption rates for "loss of teeth" among men drafted for the Federal Army in 1863–1864; (3) rates of past and present decay attacked teeth among U. S. Naval recruits in 1934, and surveys of tooth decay among United States school children.[4, 5, 6]

In this paper tooth decay includes past as well as present evidence of caries attack. It is realized that diseases other than tooth decay may contribute to the condition later referred to as "defective and deficient" teeth, or "missing" teeth, yet it is believed that among the age groups under consideration the effects of such diseases on the magnitude of the rates would be so relatively minor that they may be disregarded.

DENTAL REJECTION RATES AMONG DRAFTEES OF 1918

During World War I, the physical condition described as "defective and deficient" teeth caused the rejection of significant numbers of men called up for military service from the various states. There were two drafts during that war. The first was in 1917, the second in 1918. Only the data of the 1918 draft are considered in this discussion. This draft has been referred to as that of the "second million." The 1918 mean rejection rate for the entire country for "defective and deficient" teeth was 24.2 per 1,000 men examined at the army camps.

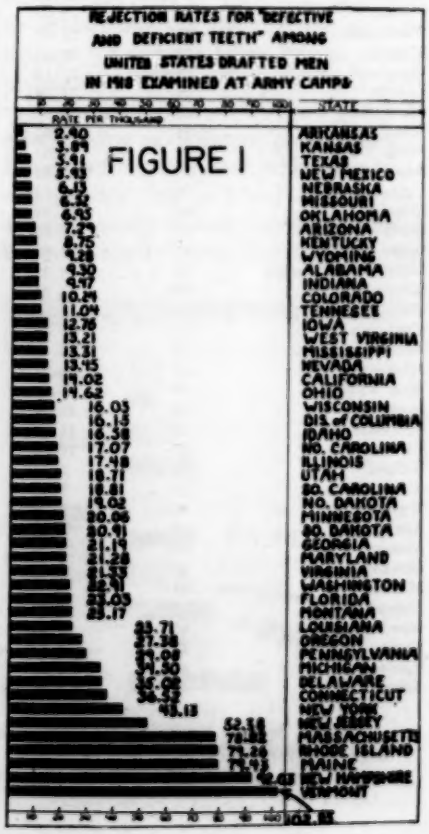
The examinations were made subsequent to May, 1918. This indicates that most of the examiners at the army

* Read before the Epidemiology Section of the American Public Health Association at the Seventy-first Annual Meeting in St. Louis, Mo., October 30, 1942.

camps and the local boards probably had had a year or more to become familiar with the criteria and examining technics. Therefore, it does not seem unreasonable to assume that considerable uniformity would prevail, resulting in state rates, the magnitude of which may be properly compared one with another.

However, the states varied in the magnitude of their respective rejection rates. The Vermont rate was 102.85, while that of Arkansas was 2.90 per 1,000 men examined. The highest rates were among 5 New England states. The remaining state of that geographical group was 8th in rank among the 48 states and the District of Columbia. The mean rate for the New England states, as a group, was 76.15. The lowest rates were consistently among the southern and southwestern states. For example, the group composed of Arkansas, Texas, and New Mexico had a mean rate of 4.66 per 1,000 men examined.*

Unfortunately, the rejection rates for "defective and deficient" teeth at the local boards of 1918 are not available. However, when the rejection rates at the local boards for *all* types of physical defects are examined, it is found that the states with the high rates had, as a rule, high rejection rates for "defective and deficient" teeth at the army camps. This point seems important when comparing the magnitude of the several states' army camp rejection rates, because it helps to eliminate the possibility that the variations resulted entirely from careless screening at the source. The degree of correlation between high rejection rates for all types of physical defects at the local boards of the 48 states and the District of Columbia and high rejection rates for "defective and deficient" teeth at the army camps during the 1918 draft was determined by the correlation coefficient of Pearson. A value of $+.63 \pm .09$ was obtained. This is a further indication that on the average the higher the rejection rate at the local boards for all types of physical defects, the higher was the rejection rate for dental defects at the army camps. The rejection rates at the army camps and at the local boards among the various states and the District of Columbia are given in Table 1. The rates for the 48 states and the District of Columbia are shown graphically in Figures I and II.



* Several preliminary statistical reports of dental findings among draftees of the several states during 1940–1942 suggest that the New England states will again have the highest rejection rates at both the local boards and at the Army Induction Centers for dental defects, and that the southern and southwestern states will have the lowest rates; however, it is believed that the available data are too meager to permit a final conclusion to be drawn in this respect at the present time.

TABLE 1

Rejection Rates for "Defective and Deficient" Teeth among Draftees of Various States at Army Camps and for All Types of Physical Defects at Local Boards During 1918 (A); *Rejection Rates for "Loss of Teeth" among Draftees of Northern States for Federal Army During 1863–1864* (B)

	Draftees of 1918				*Draftees of 1863–1864*	
	Rejection Rate per 1,000 Men for "Defective and Deficient" Teeth at Camps		*Rejection Rate per 1,000 Men for All Types of Physical Defects at Local Boards*		*Rejection Rate per 1,000 Men for "Loss of Teeth"*	
State	*Order of Magnitude*	*Rate*	*Order of Magnitude*	*Rate*	*Order of Magnitude*	*Rate*
Vermont	1	102.85	2	286	8	20.57
New Hampshire	2	92.03	30	133	5	25.05
Maine	3	79.45	3	268	14	10.21
Rhode Island	4	79.26	1	369	6	22.46
Massachusetts	5	78.82	7	188	1	34.87
New Jersey	6	52.38	22	137	9	20.19
New York	7	43.13	12	168	2	27.56
Connecticut	8	36.52	10	169	3	26.53
Delaware	9	35.02	38	120	15	7.62
Michigan	10	34.50	15	157	12	13.11
Pennsylvania	11	29.08	27	135	4	25.70
Oregon	12	27.38	19	145	..	.....
Louisiana	13	23.71	18	150	..	.....
Montana	14	23.17	43	98	..	.....
Florida	15	23.03	34	126	..	.....
Washington	16	22.91	5	204	..	.....
Virginia	17	21.33	17	154	..	.....
Maryland	18	21.28	4	219	11	16.57
Georgia	19	21.19	35	126	..	.....
South Dakota	20	20.91	29	134	..	.....
Minnesota	21	20.06	26	135	7	22.08
North Dakota	22	19.02	40	108	..	.....
South Carolina	23	18.31	37	122	..	.....
Utah	24	18.71	14	157	..	.....
Illinois	25	17.48	20	143	..	.....
North Carolina	26	17.07	32	131	..	.....
Idaho	27	16.58	39	114	..	.....
District of Columbia	28	16.15	33	128	..	13.75
Wisconsin	29	16.03	31	131	16	5.39
Ohio	30	14.62	21	141	10	18.87
California	31	14.02	6	203	..	.....
Nevada	32	13.45	36	123	.	.....
Mississippi	33	13.31	42	104	..	.....
West Virginia	34	13.21	41	105	..	.....
Iowa	35	12.76	16	155	..	.....
Tennessee	36	11.04	9	174	..	.....
Colorado	37	10.24	8	179	..	.....
Indiana	38	9.47	25	135	..	.....
Alabama	39	9.30	45	91	..	.....
Wyoming	40	9.28	48	64	..	.....
Kentucky	41	8.75	13	165	13	10.98
Arizona	42	7.29	49	12	..	.....
Oklahoma	43	6.95	28	134	..	.....
Missouri	44	6.52	24	135	..	.....
Nebraska	45	6.13	47	78	..	.....
New Mexico	46	5.93	11	169	..	.....
Texas	47	5.91	23	135	..	.....
Kansas	48	3.89	46	89	..	.....
Arkansas	49	2.90	44	93	..	.....

(A) Britten, R. H., and Perrott, G. St. J. Summary of Physical Findings on Men Drafted in World War. *Pub. Health Rep.*, 56:43–62 (Jan. 10), 1941.

(B) Lewis, J. R. Exemptions from Military Service on Account of Loss of Teeth. *Dental Cosmos*, 7:240–242 (Dec.), 1865.

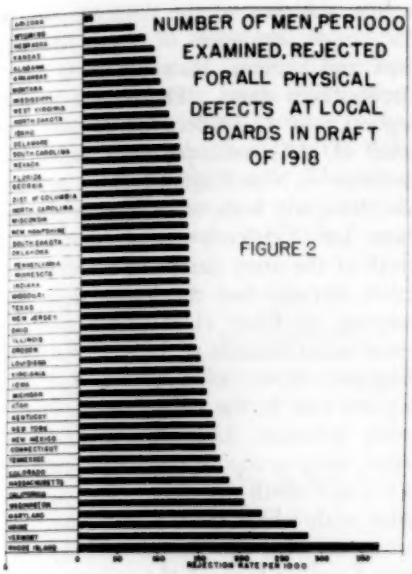


FIGURE 2

DENTAL DEFECTS AMONG DRAFTEES OF THE FEDERAL ARMY IN 1863–1864

Dental defects also contributed to physical unfitness among the men of military age during the Civil War period. During that war there were two drafts for the Northern Army. In the draft of 1863 "loss of teeth" caused the rejection of 20.49 per 1,000 men examined. The 1864 rate was 25.37 per 1,000 men examined. As noted in the 1918 draft, the various states also differed in the magnitude of their rejection rates during 1863 and 1864. The New England mean rate for the 1863 and 1864 drafts was 23.07, while that of Delaware and Maryland was 12.09 per 1,000 examined men.

The mean rates for the Northern states contributing to the drafts of 1863 and 1864 are included in Table 1.

The states that contributed to both the 1863–1864 and 1918 drafts have been grouped into arbitrary but more or less natural geographical areas and their mean rejection rates for the two periods are shown in Figure III. It would be improper to use the magnitude of the rates of 1863–1864 and 1918 as a measure of the relative severity or extent of the dental disease or diseases which caused rejection during the two periods, because the criteria differed. But, it may be observed with interest and possible profit that the magnitude of the rates for the same areas assume nearly the same relative position in both series. This duplication of events after a period of half a century is striking indeed.

TOOTH DECAY AMONG UNITED STATES NAVAL RECRUITS OF 1934

As previously pointed out, it is well known that the particular dental disease which contributed most to the dental condition in the draftees described as "defective and deficient" teeth in 1918 or "loss of teeth" in 1863–1864 was tooth decay. It is, therefore, pertinent to investigate the distribution of that disease throughout other groups of the population. Does the prevalence rate vary from state to state, from group to group living in different environments? Corroborative evidence which tends to substantiate this is found in a survey among a group of men who were enlisted in the United States Navy during the

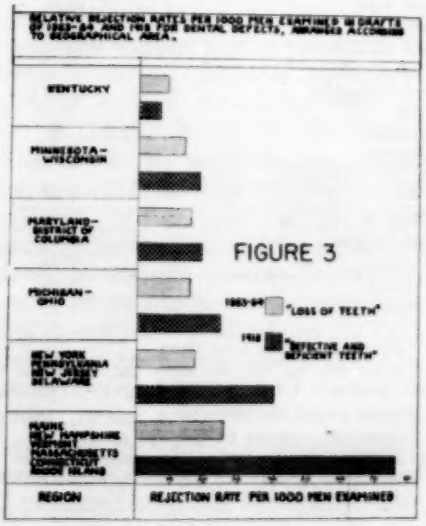


FIGURE 3

year 1934. While the men in that naval group and the condition of their teeth differed from the rejected draftees, inasmuch as they were found suitable for military service, yet the method used in determining their dental status allows an estimate of the relative prevalence of caries, past and present, among the teeth of men of the various states. In the naval survey under consideration there were 4,602 white men. After enlistment they were assembled at Norfolk, Va., where they were examined by the same dentist * and their present and past tooth decay experience was recorded according to the number of decayed, missing or filled (DMF) teeth. On subsequent study by the naval investigator it was found that, as a rule, the men of the northern states had more evidence of tooth decay, past and present, than did men from the southern states. The state with the highest rate, 12.54 decayed, missing, or filled (DMF) teeth per man was Connecticut—a New England state. Arkansas, the state with the lowest rejection rate for "defective and deficient" teeth at the army camps in the draft of 1918, likewise had the lowest decayed, missing, or filled (DMF) rate among these naval recruits of 1934. The New England states, as a group, had the highest rate in the entire series, 11.48; while Arkansas, Louisiana, and Mississippi, as a group, had a mean rate of 3.5 DMF teeth per man. The consistency with which these naval data tend to agree with the dental findings collected among men of the several states

* Lieutenant Commander R. A. Ferguson

TABLE 2

Mean Number of DMF (Decayed, Missing or Filled) Permanent Teeth among 4,602 White, United States Naval Recruits During 1934, Arranged According to the Magnitude of the Various State Rates (A)

State	Order of Magnitude	DMF Rate per Man
Connecticut	1	12.54
Massachusetts	2	12.20
Pennsylvania	3	11.40
Rhode Island	4	11.00
New York	5	10.84
Ohio	6	10.53
New Jersey	7	10.30
Vermont New Hampshire Maine	8 *	10.20 *
Delaware Maryland District of Columbia	9 †	9.70 †
Illinois	10	9.25
Minnesota	11	9.10
West Virginia	12	7.90
Michigan	13	7.14
Wisconsin	14	7.00
Nebraska	15	6.80
Oregon Montana Washington North Dakota Utah Idaho California Nevada Colorado Wyoming Arizona New Mexico	16 ‡	6.00 ‡
South Dakota	17	5.30
Missouri	18	4.40
Indiana	19	4.38
Kentucky	20	4.30
Iowa	21	4.10
Louisiana Virginia South Carolina Oklahoma Texas Kansas	22 ‡	4.00 ‡
Florida	23	3.60
North Carolina Alabama	24 **	3.50
Georgia Mississippi	25 **	3.40 **
Tennessee	26	3.20
Arkansas	27	3.00

* Mean rate for the three states

† Mean rate for the two states and District of Columbia

‡ Mean rate for the twelve states

** Same value appears for indicated states

(A) Ferguson, R. A. Some Observations on Diet and Dental Disease. *J. Am. Dent. A.*, 22:392–401 (Mar.), 1935.

at different times over a period of some 70 years seems to allow greater weight to be given them as being representative of the universe from which they were drawn than would ordinarily be the case where the numbers in the samples are relatively small. The rates for the several states and the District of Columbia are shown in Table 2 and Figure IV.

FIGURE 4

The Pearsonian correlation coefficient was used to determine the degree of relationship between high rejection rates at the army camps for "defective and deficient" teeth among the draftees of 1918 and high DMF rates among the naval recruits of 1934. The rates that were based on grouping the men of two or more states, as was done in the original report for 17 states, have been omitted from the calculations. The value of r was found to be $+ .70 \pm .09$.

This value indicates a relatively high and statistically significant correlation between high rejection rates for dental defects among the men of military age of 31 states in 1918 and high DMF rates among the young men of the same age 16 years later; that the force or forces which tended to operate to produce dental diseases, particularly tooth decay, were not haphazard but more or less constant over a considerable period.

Most of the lesions of tooth decay which eventually caused the rejection of men in the several drafts or which caused the men in the naval group to have decayed, missing, or filled (DMF) teeth, had their inception when the individuals were relatively young, when their permanent teeth had been erupted a relatively short period. Therefore, as complementary to a study of the extent of dental defects among men of military age, it seems desirable to examine data as to permanent teeth of children in various parts of the United States.

Several dental surveys among children have demonstrated the geographical distribution of tooth decay. Mitchell [7] found that the white children of Puerto Rico had less tooth decay than did children of the same age and color in the United States. Moore [8] contrasted the dental condition of 393 preschool children in San Diego, Calif., with 550 children of the same age in Portland, Ore. He reported that 54.5 per cent of the San Diego children were without dental caries experience, while among the Portland children 22.5 per cent were without past or present tooth decay. In an extensive survey by private dentists coöperating with the U. S. Public Health Service during 1933–1934, the dental findings among some 1,500,000 school children are reported.[9] It was found that the dental caries prevalence rates of the permanent teeth of children residing in different states varied greatly in their magnitude. For example, it was found that the mean number of permanent teeth attacked by decay among boys aged 13 residing in cities having a population of 100,000 or over of the states of Florida, Virginia, and Massachusetts was 3.09, 4.17, and 5.69 respectively. In Table 3 the mean

number of decayed, missing, or filled permanent teeth among Florida, Virginia, and Massachusetts city boys aged 7, 10, and 13 respectively is given, together with the number of children composing each sample.

TABLE 3

Mean Number Decay Attacked Permanent Teeth among Three Age Groups of Boys Residing in Florida, Virginia, and Massachusetts Cities Having Populations of at Least 100,000 (A)

Mean Age Last Birthday	7	10	13
Florida			
Number of Children Examined	2,878	3,479	1,220
Mean Number of Decayed, Missing, or Filled Permanent Teeth	0.71	1.92	3.09
Virginia			
Number of Children Examined	1,350	1,492	951
Mean Number of Decayed, Missing, or Filled Permanent Teeth	0.93	2.60	4.17
Massachusetts			
Number of Children Examined	1,353	1,425	1,308
Mean Number of Decayed, Missing, or Filled Permanent Teeth	1.87	3.83	5.69

(A) Messner, C. T., *et al.* Dental Survey of School Children, Ages 6–14 Years Made in 1933–1934 in Twenty-six States. *Pub. Health Bull.*, 226, 1936.

Because the surveys among children which have just been referred to were made by groups of private practitioners, it has been suggested by some that differing criteria and methods of reporting might tend to vitiate them. Four other sets of data are presented which seem to be relatively free from such defects because the examinations were all made by members of the dental staff of the U. S. Public Health Service. This leads to the assumption that unusual uniformity would prevail in the data and that the relative magnitude of the different rates may be used as a reliable measure of the severity and extent of the disease among the different groups.

Two of these groups were whites who resided at Nicollet County, Minn., and Hagerstown, Md., respectively. The remaining two groups were Indian children who lived on reservations in northern and southwestern localities of the United States.

The decayed, missing, or filled rates among the permanent teeth for the various age groups of children are given in Table 4 and are shown, graphically, in Figure V. The values demonstrate

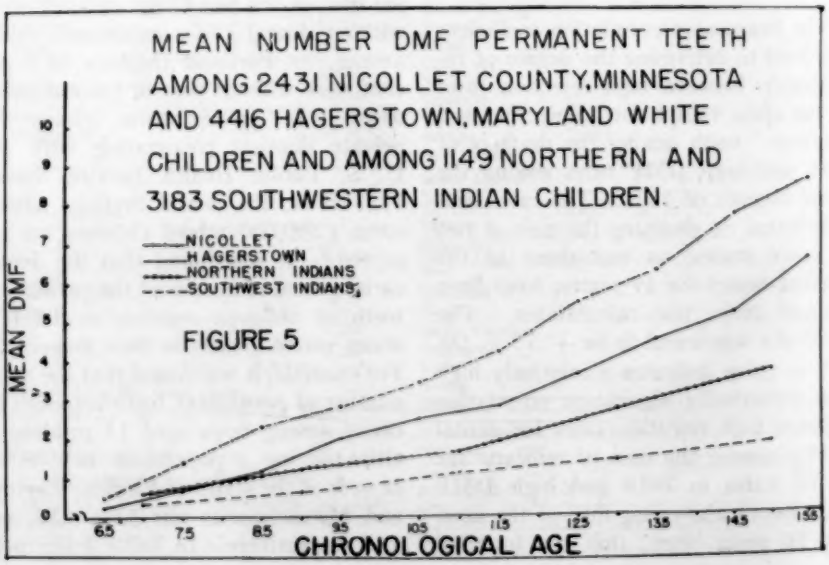


FIGURE 5

that, among these groups of children residing in different environments, the number of permanent teeth * attacked by caries at a given age differs, as do the rejection rates among the men of the Army drafts, and the DMF rates in the 1934 naval group. That is, the children who resided in the more northerly locations had greater evidence of past and present tooth decay than did those of more southerly areas.

Among these groups of children the relationship between the number of attacked teeth and time approaches linearity, the curves only differing in their slope. This relationship persists in spite of the fact that the number of permanent teeth erupted, and therefore eligible for caries attack, increased from approximately 6 to 28 during the age periods studied. The data suggest that the relative dental fitness of the men of military age of the various states probably could have been predicted with considerable reliability from the relative condition of their teeth when they were children. In suggesting the probability of such a relationship, it is assumed that the distribution of corrective dental service would be at least as great among the population of the states with the high attack rates as among those enjoying the lower rates.

While factors associated with latitude have been chosen to illustrate epidemiological aspects of dental disease, it should be emphasized that other conditions and circumstances could and probably do influence and contribute to tooth decay. Dean,[10, 11, 12] in his extensive investigations of the relationship between fluorine in communal water supplies and caries resistance, offers another illustration of the importance of introducing epidemiological methods when considering the phenomenon of tooth decay and its distribution among the population.

TABLE 4

Mean Number Decayed, Missing, or Filled (DMF) Permanent Teeth among 2,431 Nicollet County, Minnesota (A), *and 4,416 Hagerstown, Md.* (B), *White Children; and among 1,149 Northern and 3,183 Southwestern Indian Children* (C)

Age Last Birthday →	*6*	*7*	*8*	*9*	*10*	*11*	*12*	*13*	*14*	*15*
Locality	*Number DMF (Decayed, Missing or Filled) Permanent Teeth per Child*									
Nicollet Count, Minn.	0.51	1.43	2.30	2.85	3.39	4.16	5.49	6.32	7.69	9.62
Hagerstown, Md.	0.29	0.72	1.19	2.01	2.51	2.84	3.65	4.54	5.21	6.47
Northern Indians	.....	0.63	....	1.27	....	1.67	....	2.75	....	3.70
Southwestern Indians	.....	0.37	....	0.68	....	1.47	....	1.88	....	2.70

(A) Knutson, J. W. Appraising the Dental Health Program. *J. Am. Dent. A.*, 29:543–556 (Apr.), 1942.
(B) Klein, Henry, Palmer, C. E., and Knutson, J. W. Studies on Dental Caries, I. Dental Status and Dental Needs of Elementary School Children.
(C) Klein, Henry, and Palmer, C. E. Dental Caries in American Indian Children. *Pub. Health Bull.*, 239 (Dec.), 1937.

SUMMARY

Apparently there are marked differences in the distribution of dental diseases among groups of the population residing in various states of the United States. These differences are reflected in the magnitude of the rejection rates for dental defects among men who have been drafted for military service. When the rejection rates of the states contributing to more than one draft are listed according to magnitude, con-

* It has been assumed that the numbers of the various types of permanent teeth erupted at a given age would not differ among the children of the different localities. However, this is only a working hypothesis and has not been tested by extensive data. It has been found that no significant difference in this respect existed between the Hagerstown, Md., children and a similar age-sex group of Chicago, Ill., children. (Greenwald and East: Eruption Tables of Permanent Teeth of Chicago School Children. *Illinois Dent. J.*, Sept., 1941.)

siderable uniformity is observed in the resulting order of arrangement for each draft period. The possibility that these recurring phenomena can be explained entirely by chance and, or, by differing examining technics and criteria, is discussed and considered unlikely. Evidence tending to substantiate the probability that the observed differences are representative of the relative extent of the disease among the population of the respective states is offered by data resulting from the examination of naval recruits during 1934. The reasonableness of the hypothesis is further supported by data stemming from surveys of the extent of tooth decay among children residing in different geographical areas. The relationship between latitude and dental diseases, particularly tooth decay, has been used to illustrate some of the epidemiological aspects of the problem, but it is emphasized that many other known and unknown conditions and circumstances may, and undoubtedly do, influence the disease and its distribution. It is suggested that the study of dental diseases offers a particularly interesting and profitable field for the use of epidemiological methods.

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Syphilis Control in a State Prison

III. A Centralized Syphilis Control Program for the State Prisons of New York *

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IN previous communications [1, 2] we have described the marked improvement occurring in the care of syphilitic inmates at Sing Sing Prison following the inauguration of a specific program. As a result of the reëvaluation of the status of each individual with syphilis there occurred a huge reduction in the number of inmates under treatment and a more adequate type of therapy for those who required it. We made the observation that imprisonment for an extended period might be interpreted, paradoxically, as a beneficial event in the life of a syphilitic, as it enabled him to receive a complete diagnostic appraisal and adequate therapy for his disease under conditions more suitable than those encountered by him in civilian life. In proof of this it was shown that, whereas only 13.5 per cent of those with a knowledge of the disease for 5 years or more had received adequate therapy prior to admission, 85 per cent of those requiring antisyphilitic treatment at the time of admission had fully completed that therapy 2 years later. In addition, we have indicated that the placement of a large number of syphilitic individuals under supervision for prolonged periods offers an unusual opportunity for the investigation of problems referable to the course of syphilis and its treatment.

Because of the methods of reception and transfer of inmates within the New York State penal system, the above program at Sing Sing Prison was not complete by itself. Sing Sing Prison is a "receiving" institution and admits about 70 per cent of the total number of prisoners entering the state penal system. A number of these inmates are transferred each month to other state institutions, namely Attica, Auburn, Clinton, Great Meadows, and Wallkill State Prisons. Attica Prison receives about 25 per cent of the total number of direct admissions, and Clinton Prison about 5 per cent. Auburn, Great Meadows, and Wallkill State Prisons are strictly "transfer" institutions and receive all of their inmates from other prisons. There are occasional transfers of inmates from one "transfer" prison to another for various reasons. Therefore, it is obvious that unless all the institutions operating within this system maintained the same standards, the benefits of a diagnostic appraisal and decision as to the need for therapy accorded to an individual with syphilis at one prison might be lost when the patient was transferred to another.

In view of the above, a centralized system was visualized whereby through

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the coöperation of the various state prisons the care and treatment of an individual with syphilis would be adequately determined upon his entrance into the state penal system and continued in effect despite transfers from one institution to another. Also, the favorable results obtained by the reevaluation of the records at Sing Sing Prison suggested that a similar approach might be made to the problem of syphilis at other institutions of the New York State Department of Correction. By these procedures, not only would improved methods of diagnosis and treatment be extended to additional large groups of syphilitic inmates but the combination of their records with those of the Sing Sing Prison patients would form a huge reservoir of statistical data.

PRELIMINARY SURVEY

In November, 1941, a meeting was held with the chief physicians of the various state institutions to discuss the creation of a uniform syphilis control program for the New York State Department of Correction. In the following month a field survey of the several institutions was made to determine the extent of their facilities, their personnel, and their methods for the care of inmates with syphilis. In general the findings parallelled the situation existing at Sing Sing Prison prior to the latter's inauguration of its syphilis program. A summary of these findings follows:

1. Little attention was paid to an evaluation of the many factors relating to the disease in each inmate with syphilis.

2. Patients were treated in large groups under rule-of-thumb regimes. With one exception, treatment was given in interrupted courses with intervals as long as, or longer than, the course. The schedule differed at each institution.

3. Little attention was paid to previous therapy. Too much reliance was placed upon the results of the Wassermann reaction of the blood in guiding treatment. In some institutions, patients were continued on therapy for 5 or 10 years as long as the serology was positive, whereas inadequately treated patients were taken off therapy because of a reversal of the serologic test.

4. Spinal fluid analyses were not obtained routinely on all inmates with syphilis, except in one institution.

5. Chest roentgenograms were not obtained on late cases of syphilis.

6. Methods for the periodic observation of patients with syphilis were inadequate.

7. No facilities were available for the administration of fever therapy for neurosyphilis.

8. The physicians-in-charge were eager to coöperate in a plan designed to provide effective and adequate treatment of their patients.

THE SYPHILIS CONTROL PROGRAM

With the field thus surveyed a Syphilis Control Program for the New York State Department of Correction was formulated and launched in January, 1942. The central focus was designated the Syphilis Control Office (S.C.O.), and was located at Sing Sing Prison because of the position of the latter as the chief reception depot and because of its adequate facilities for diagnostic procedures and for the administration of special therapeutic regimes.

The functioning of the Syphilis Control Office can be summarized as follows:

1. *Review of current cases*—Each prison physician sent to the S.C.O. a copy of the record of every syphilitic inmate in his institution. These records were complete in regard to history, physical examination, laboratory tests, and treatment. The charts were reviewed by the staff members of the S.C.O. and suggestions were made as to any further work-up or treatment which might be indicated. These suggestions were then forwarded to the prison physicians.

2. *Admission of new patients*—All inmates admitted to Sing Sing Prison are interviewed as to a history of syphilitic manifestations, positive serologic tests, or antiluetic therapy. All patients giving a positive history, or showing syphilitic manifestations, or upon whom positive serologic tests are obtained in the routine examinations, are admitted to the Sing Sing Prison Syphilis Clinic. Complete

history and physical examination are then performed. Attempts are made to confirm all positive histories of syphilitic manifestations and treatment by correspondence with the medical authorities who previously cared for the individuals. Laboratory work-up includes quantitative complement-fixation tests determined by the New York State Department of Health, Division of Laboratories, complete spinal fluid analyses, teleroentgenograms of the chest and electrocardiograms. The S.C.O. then makes a decision as to the future course of the individual. In general, there are 3 groups of patients: (a) those who are to receive no further antisyphilitic therapy; (b) those who are to receive routine therapy consisting of continuous, alternating courses of a trivalent arsenical and bismuth; and (c) those who are to receive special forms of treatment such as fever and intensive methods of arsenotherapy. The individuals of the first two groups are then eligible for transfer to other institutions, but members of the third group are eligible for transfer only after the completion of the special forms of treatment.

The physician in charge of each of the other "receiving" institutions carries out investigations similar to those of the Syphilis Clinic at Sing Sing Prison. He makes a decision as to each inmate's future course. A copy of the chart is then submitted to the S.C.O. for its appraisal.

3. *Transfer of patients*—When an inmate with syphilis is transferred from Sing Sing Prison to a coöperating institution, the S.C.O. forwards copies of his records. The prison physician is requested to continue the courses specified for each individual. The necessary follow-up examinations are indicated. It is requested that no changes be made in the regime prescribed by the S.C.O. or other admitting office before such is brought to the attention of, and is approved by, the S.C.O. and corrections made on its own records.

Upon the transfer of an inmate with syphilis from one coöperating institution to another, the transferring institution sends to the S.C.O. a notification of that fact together with its completed case records. The S.C.O. then forwards to the receiving prison a copy of these records including its suggestions as to the future course of the individual.

4. *Rôle of the coöperating physicians*—The functions of the prison physicians are as follows:

a. Performance of history and physical examination on admission and a repetition of the latter twice yearly.

b. Administration of routine treatment.

c. Performance of serologic tests (titered by New York State Department of Health, Division of Laboratories) twice yearly and of lumbar punctures and chest roentgenograms where indicated.

d. Keeping of adequate records in uniformity with all coöperating institutions.

5. *Parole or discharge of inmates*—When an inmate with syphilis is to be discharged by expiration of his sentence, the coöperating institution sends to the S.C.O. one complete clinical record including final suggestions as to the future needs of the individual. When the patient is released on parole, a copy is also sent to the parole officer. If further therapy or follow-up is indicated, the parole officer assigns the patient to an appropriate clinic and supplies that clinic with the record.

6. *Consultation service*—At least twice yearly, a staff member of the S.C.O. visits each of the coöperating institutions for the purpose of discussing problems and consulting about difficult cases. Visits may be made more frequently should the occasion arise.

7. *Handling of neurosyphilitic inmates*—The majority of patients with syphilis of the central nervous system are diagnosed on admission to Sing Sing Prison by clinical means or by spinal fluid analysis and are kept at that institution so that especially indicated forms of treatment may be administered. When such therapy has been completed, these patients may be transferred to other institutions.

When inmates with central nervous system syphilis are admitted directly to other institutions, or are first discovered at other prisons, arrangements are made to have these individuals transferred to Sing Sing Prison because of the therapeutic facilities there available. Upon the completion of therapy, the patient may be re-transferred to the original institution for follow-up.

8. *Establishment of the Central File*—The Syphilis Control Office established a Central File to serve as a collective reservoir for all information related to inmates with syphilis within the coöperating institutions. This file was begun with the records which were submitted to the S.C.O. for appraisal in the original review of current cases. Records of newly admitted patients are added when the diagnostic procedures are completed and the therapeutic regimes outlined. The charts are kept current by the addition of related correspondence, progress reports by the coöperating physicians, and the notations of the S.C.O. consultant at the time of his periodic visit to the institutions. When an inmate leaves an institution, the prison physician

sends to the S.C.O. a report which includes all information not previously recorded in the Central File and a statement relative to the future course of that individual. When an inmate is transferred from one coöperating institution to another, this fact is noted on the file of both prisons.

PROGRESS

In the six months which have elapsed since the inauguration of the program, considerable progress has been made. Five other institutions of the New York State Department of Correction have joined with Sing Sing Prison in establishing uniform methods for the care of inmates with syphilis under the supervision of the Syphilis Control Office.

The records of 942 patients from these 5 institutions have been brought up-to-date by the prison physicians and reviewed by the S.C.O. staff, as had previously been done with the records of inmates with syphilis at Sing Sing Prison. Seventy-five patients have been seen in consultation during a visit of an S.C.O. staff member to these institutions. Many inmates with late syphilis are having chest roentgenograms and spinal fluid analyses for the first time. The application of definite criteria for the determination of the adequacy of previous therapy has resulted in a reduction in the percentage of patients under treatment from 72.5 per cent to 19.3 per cent. Fifteen cases of active neurosyphilis were found which were previously undiscovered or were being unsuccessfully treated by routine methods over long periods. These inmates have been transferred to Sing Sing Prison for fever therapy.

The Central File now contains records of 1,502 current cases of syphilis under the supervision of the Syphilis Control Office of the New York State Department of Correction. This number includes 560 cases at Sing Sing Prison plus those of the 5 coöperating institutions. The records in this file are kept up-to-date through notifications by the prison physicians as to changes in regime, transfer, or discharge of any patient.

DISCUSSION

The Syphilis Control Program has been launched primarily to permit the several large institutions of the New York State Department of Correction to coöperate in maintaining uniform standards in the treatment of the syphilitic inmates under their control, thereby insuring effective and sufficient treatment. The advantages of incarceration for an extended period within a single institution in allowing for the administration of adequate antiluetic therapy has previously been demonstrated.[2] The Syphilis Control Program brings the same advantages to all syphilitic inmates within the state penal system, including those who for various administrative reasons are subjected to one or more transfers. The syphilitic inmate now has the advantage of an initial complete diagnostic appraisal by physicians particularly interested in syphilis, and consultation by these physicians as need arises. The proper handling of the syphilitic during his period of incarceration results in an individual with much more confidence regarding his future and also precludes him from being added to the problem of syphilis and its complications among the general public when he is released.

The pooling of scientifically collected facts concerning these many syphilitics in the Central File should create a reservoir which later will bring forth much information and fill many gaps concerning current knowledge of the disease. As the average period of incarceration within a state prison is 2 years, and many serve sentences for 10 years or more, while others return because of violation of parole or new offenses, the chances appear unusually good for obtaining long term observations upon

these individuals. With an active case load of 1,500, and approximately 500 added yearly, the number of cases followed for long periods should be sufficient to allow us to draw conclusions of statistical significance. It is hoped that with the passage of years, answers can be found to such questions as the indications for therapy in latent syphilis, the differences in final outcome between untreated, inadequately treated, and adequately treated patients, the differences between adequate treatment early and late in the course of the disease, and finally an evaluation of the newer intensive methods of therapy.

SUMMARY

1. A centralized program for the care of syphilitic inmates in the various New York State penal institutions has been described.

2. By means of such a program, all syphilitic inmates can be assured of adequate therapy during their periods of incarceration.

3. The establishment of a central file with records of 1,500 active cases, many of whom will be followed over long periods of time, may eventually yield a considerable amount of useful information regarding the course of syphilis.

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Efficacy of Standard Purification Methods in Removing Poliomyelitis Virus from Water*

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THE presence of poliomyelitis virus in feces of persons ill with the disease was first demonstrated almost thirty years ago [1] and has been verified many times in the last few years.[2, 3] The presence of poliomyelitis virus in feces indicated that sewage might become contaminated with the virus and the possibility arose that the virus might persist in sewage for a considerable period of time—hypotheses demonstrated recently by several workers to be facts.[4, 5] The gastrointestinal portal of entry, long maintained by Toomey [6] and recently substantiated by others,[7] would suggest that any substance that contained active virus taken through the mouth might be a hazard to the individual. It is quite possible that water could become contaminated secondarily from sewage and the virus thus find its way back to the intestinal mucosa. The viability of poliomyelitis virus in sterile water stored in the dark has been found to be over 100 days,[8] and it has further been shown that chlorination by present-day methods [9, 10] is of little value in the destruction of the virus. These observations point further to the potential hazard of water as a possible means of transmission of poliomyelitis virus, although water cannot be at present incriminated as a transmitter of the disease.[11]

The studies here reported have been undertaken to see if methods commonly employed in water purification plants will remove poliomyelitis virus from water which has been artificially contaminated with it. The investigation of the effects of the chemical and physical methods used in water purification were approached under the following headings: Storage, Sedimentation, Sand Filtration, Hydrogen ion Range, Charcoal Adsorption, and Ultraviolet Irradiation.

METHODS

General—A neurotropic virus, apparently an adapted poliomyelitis strain pathogenic for mice, was used throughout the experiments. Inoculations were made intracerebrally in amounts of 0.03 ml., and were made immediately after the removal by aseptic procedure of samples of the materials under investigation. The virus dilution used was 1:500 unless otherwise stated. Control groups of mice were included for each phase of the study. The control groups

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received the virus in the same quantity and by the same route as the test animals. All mice were observed at least once daily for paralysis or other evidences of illness. Two strains of mice were used in the experiments: University Hospital Strain and Webster Strain of white Swiss mice. The animals used were 3 to 4 weeks of age. All groups were observed for a period of 30 to 40 days following the inoculations before the protocol was completed. To obtain the original virus suspension, mice paralyzed in two or more extremities were sacrificed and their cords and brains removed. These were ground up in refined silica and suspended in broth or saline. After centrifugation at moderate speed for 5 minutes, the supernatant was removed and used as the virus concentrate. This was a 1:5 suspension of brain and cord. A fraction of each stock lot was frozen and stored in dry ice in a deep freeze unit for later use.

Coagulation and Sedimentation—Battery jars to which city water or raw untreated water was added were used for sedimentation tests. Lime and alum were added to city water to obtain the floc, while only alum was used in the raw water. By varying the amount of lime added, variations in pH of 6.3, 6.7, and 7.0 were obtained. In water purification plants, raw waters are treated at different pH's, and by using these three we tried to approximate the pH range in standard use. To samples of city water, 100, 120, and 140 p.p.m. of lime were added and 100 p.p.m. of alum. In the raw untreated water, only 100 p.p.m. of alum were used. Fuller's earth, 100 p.p.m., was added to some samples of city water to increase particulate matter to the point of turbidity.

After the chemicals were mixed into the water, the virus was added and the water containing the virus and chemicals was then slowly stirred for 20 to 30 min. The sedimentation jar was then placed in a refrigerator for 2 to 3½ hrs. to allow the alum floc to settle. Refrigeration was found necessary, otherwise the air dissolved in the water tended to carry portions of the floc to the surface. After the settling period, samples were removed aseptically for injection into the animals. Twenty-four hour samples were also taken several times, as it was thought that minute invisible particles of floc might still be settling at the end of the shorter holding period.

Filtration—A model laboratory sand filter was made with a glass tube, 2½" in diameter and 4' in length. Ottawa filter sand, having an effective size of 0.508 and a uniformity coefficient of 1.24, was placed in the tube to a height of 30", the bottom of the tube being occluded by a carborundum block 1¼" in height, to supplant the gravel used in filtration beds. A constant flow apparatus was installed to furnish a constant head to the sand filter. The details of this apparatus are shown in Figure 1.

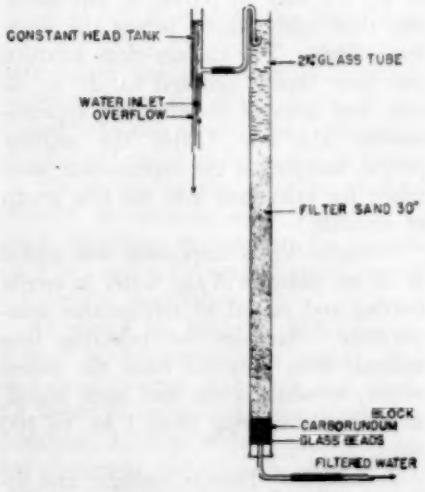

FIGURE 1—Model of the Laboratory Flow Sand Filter

With the constant head maintained over the sand filter, the virus suspension could be added to the top of the filter without any change taking place in rate of flow. Samples of filtered water were collected at varying intervals from the bottom of the filter. Virus suspension was added at the top of the sand filter, both with and without alum floc impregnated in the upper layers of sand.

The flow of water maintained through the sand filter was 144 ml. per minute, calculated on the basis of 125 m.g.d. per acre, which is standard water plant practice. This rate of flow could be maintained by regulating the petcocks between the filter and constant flow apparatus and those at the bottom of the filter. A further check on the speed of flow through the sand filter was obtained by adding fluorescein dye (1:1,250,000) at the same time the virus was added and beginning the collection of samples at the first appearance of the color in the filtered water.

Activated Charcoal—Activated charcoal (Cliffchar Activated Carbon-R. Fine, 30 Phenol Value, Dow Chemical Co.) was suspended in concentrations of 10, 25, and 50 p.p.m. in tap water and thoroughly mixed before the virus was added. The carbon-virus mixture was then slowly agitated for 20 to 30 min. and allowed to settle for approximately 3½ hrs. After the settling period, samples of the supernatant were taken for injections into the test group of animals.

Storage—Virus suspension was added to 50 ml. samples of tap water in sterile bottles and stored at refrigerator temperature. Samples for injection into animals were removed from the stored water, to which virus had been added, at intervals varying from 1 hr. to 100 days.

Irradiation—Direct sunlight and irradiation from ultra-violet lamps (General Electric and Westinghouse tubes) were used as the sources of rays.

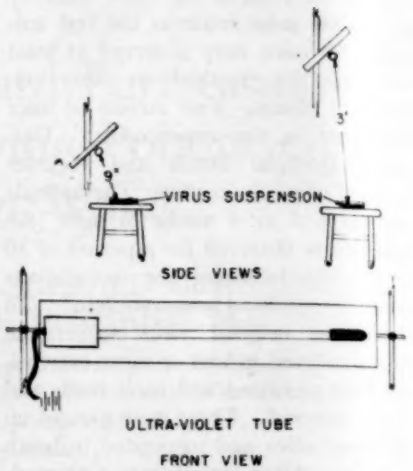

FIGURE 2—Methods of Exposing Virus Suspension to Ultra-violet Irradiation

Both Toomey[12] and Jungeblut[13] have reported effectiveness of ultra-violet irradiation in the destruction of poliomyelitis virus. The methods employed in our studies were similar to those described by Toomey,[12] except that larger quantities of virus and greater depths of material were used, as well as greater distances from the source of radiation. Figure 2 is a diagrammatic sketch of the apparatus in relation to the source of light.

The virus suspension in 1:100 dilution was exposed in uncovered glass dishes to the source of irradiation. In one experiment the distance from the light was 9" and the depth of the suspension in the dishes was 5/16". In another experiment the source of radiation was 3' from the virus suspension, which was ½" in depth. In a third experiment the distance was 12" and the virus suspension 2½" in depth. In tests of direct sunlight the virus suspension was ½" in depth. Samples were taken at 5, 10, 15, 25, and 30 min. intervals in the first experiment and at 5, 15, and 30 min. intervals in the later experiments.

Aeration—Air at room temperature

was allowed to bubble through a 1:100 virus suspension for 45 min. Samples for injection were taken at 30 and 45 min. In making these experiments 25 ml. of virus suspension were placed in a side-arm test tube to which a suction pump was attached. Room air was drawn to the bottom of the suspension through a tube so that all portions of the suspension were well agitated by the passage of air.

Hydrogen ion Range—Virus suspensions in 0.5 ml. amounts were added to 9.5 ml. of buffered solutions of a pH range from 4.0 to 8.5. All were placed in the refrigerator for 1 hr. and were then neutralized to a pH of 7.0 and samples were taken for injection.

The pH of each sample was determined colorimetrically and was checked in the Beckman pH Meter; the pH after addition of the virus suspension, compared with the pH of the buffered solution, is shown in Table 1.

TABLE 1

pH Buffer Solution	*Buffer and Virus Suspension*
4.0	3.57
4.5	4.12
5.0	5.25
5.5	5.68
6.0	6.03
6.5	6.33
7.0	6.68
7.5	7.36
8.0	7.58
8.5	7.99

RESULTS

General—The appearance of paralysis in one or more mice in a test group was taken as an indication that virus persisted in the water sample under investigation and was viewed as evidence that the method of water purification employed on the particular sample, when reduced to laboratory scale, was unsuccessful in removing completely or inactivating completely the mouse-adapted poliomyelitis virus. In many cases mice died without paralysis of the extremities being observed. These animals have been segregated in the tabulation of results even though mice in a virus-injected group, dying after one or more of the group were paralyzed, might be counted as deaths from the virus infection, because respiratory paralysis may occur in such animals before the extremities become involved.

Coagulation and Sedimentation — Paralysis developed in one or more mice of each group that received virus suspension subjected to coagulation and sedimentation procedures. However, the percentage of animals developing paralysis was usually not as high as in the control groups of animals which received untreated virus of the same dilution.

Thus, alum flocculation and sedimentation appeared to cause a slight reduction of the total amount of virus in any suspension, the amount of reduction being apparently proportional to the amount of virus present.

In the results shown in Table 2, the groups of animals which had received water of different pH's were not separated but were included under their respective headings of turbid, clear, or raw water, as it was found that variations of pH as used in this experiment did not affect the results. Rather, to interpolate here the results of the larger experiment on the effect of pH, it was found that this neurotropic virus withstood a pH range of 3.5 to 8.0, as shown in the ability of the virus to produce disease in animals after exposure to such variations in reaction for periods of 1 hr., but with neutralization to pH 7.0 before inoculation.

As shown in Table 2, 132 mice received water (containing virus) that had been treated with lime and alum. Of these, 56 mice died after developing paralysis, 25 died without paralysis being observed, and 51 were alive at the end of the experiments. In the control group 48 mice were injected with virus suspended in water but not treated with lime and alum; 28 animals were ob-

TABLE 2

Effect of Sedimentation and Coagulation in Removal of Virus

Number of Mice	*Water*	*Virus Dilution*	*Number Paralyzed*	*Number Dead*	*Discards*	*Miscellaneous*
18	Clear	1:1,000	7	4	7	3½ hr. settling
18	Turbid	1:1,000	5	5	8	3½ hr. settling
12	Control	1:1,000	5	6	1	Untreated water
6		1:5	6	..	..	Original suspension
18	Clear	1:100	4	5	9	Very fine alum floc particles
6	Control	1:100	3	1	2	Untreated water
18	Turbid	1:500	5	5	8	2 hr. settling
18	Clear	1:500	12	3	3	2 hr. settling
12	Control	1:500	9	1	2	Untreated water
6		1:5	3	2	1	Original suspension
18	Turbid	1:500	10	..	8	24 hrs. settling
18	Clear	1:500	9	3	6	24 hrs. settling
12	Control	1:500	5	2	5	Untreated water
6		1:5	4	2	..	Original suspension
6	Raw *	1:500	4	..	2	3 hrs. settling
6	Control	1:500	6	..	..	Untreated water
6		1:5	6	..	..	Original suspension

* Alum used only

served to have paralysis, 10 died without paralysis being observed, and 10 were alive at the end of the experiments. Of the control animals inoculated with the original virus suspension, 25 of 30 mice succumbed after developing paralysis, 4 died without paralysis, and 1 animal survived.

Filtration—The results of the sand filtration experiments are shown in Table 3. A sample was taken when fluorescein dye first appeared at the outlet of the filter and at 1 min. intervals thereafter until the disappearance of the color. Six mice were used for each sample taken and eight or nine samples were taken on each experiment.

When sand filtration alone was used, 29 of the 60 mice inoculated with the filtered water became paralyzed. Apparently alone, the sand filtration held back little of the virus. In a later experiment, large quantities of alum floc were allowed to impregnate the surface layers of the filter, reducing the rate of flow from 144 ml. per min. to 102 ml. per min., or to approximately 65 per cent of the standard rate of flow. The results of this experiment were quite at variance with those found in the earlier experiments where sand filtration alone or alum precipitation alone was used. Of 54 mice receiving virus in water thus filtered through a partially blocked

TABLE 3

Effect of Sand Filtration in Removal of Virus

Number of Mice	*Virus Dilution*	*Filter Substance*	*Number Paralyzed*	*No. Dead without Paralysis*	*Discards*	*Miscellaneous*
30	1:500	Sand	15	5	10	48 hrs. of water through filter
6	1:500		3	1	2	Nonfiltered suspension
6	1:5		4	2	..	Original suspension
6			..	..	6	Tap water—no virus
30	1:500	Sand	14	5	11	Well seeded filter
6	1:500		1	1	4	New filtered suspension
6	1:5		4	2	..	Original suspension
54	1:500	Sand and alum floc	1 *	1	52	Excessive amount of floc on filter
6	1:500		4	2	..	Nonfiltered water and virus
6	1:5		6	..	..	Original suspension
30	1:500	Sand and alum	15	..	15	No virus in 6 minute sample
6	1:500		5	..	1	Nonfiltered water and virus
6	1:5		4	2	..	Original suspension

* Questionable paralysis with death in two days

sand filter, only 1 animal developed paralysis. In this one case the paralysis was less extensive than in most of the control mice. Control groups of mice injected with the original virus suspension and the diluted suspension came down with paralysis in numbers as in the previous experiment, confirming the fact that virus was present and active. That a rather large accumulation of alum floc on the filter was necessary to hold back the virus was shown in the next experiment in which alum floc, layered approximately ⅛″ thick on the surface of the sand filter, failed to hold back the virus. Thirty mice were injected with water to which virus had been added before passage of the mixture through the filter so covered with a layer of alum floc. Of these, 50 per cent were observed to develop paralysis. The control groups of mice injected with the original and diluted virus suspensions gave higher percentages of takes.

When the filter sand was backwashed, large amounts of alum floc were released from this sand. This was an indication that the floc had penetrated into the sand bed.

Activated Charcoal—Attempts to remove virus from water by adsorption on activated charcoal in the concentrations tested (10, 25, and 50 p.p.m.) were partially successful. There seemed to be adsorption of the virus particles on the charcoal, as the numbers of mice which became paralyzed when inoculated with water so treated were less than those in the control groups inoculated with a similar virus suspension not exposed to charcoal.

The partial adsorption of the virus on charcoal was further demonstrated. The settled charcoal particles were injected intracerebrally into mice, and induced paralysis in a high percentage of animals, indicating that adsorption on higher concentrations of charcoal might be a means of concentrating the virus sufficiently for detection from a suspension in which it was suspected of being present in high dilution.

Ultra-violet Irradiation—The results of our first experiment with ultra-violet irradiation in which the light distance was 9″, the depth of the virus suspension 5/16″, the dilution 1:300, and 30 ml. the total suspension used were similar to results reported by Jungeblut [11] and Toomey.[12] One mouse became paralyzed in the group which received the virus exposed to ultra-violet light for 5 min. while in the groups inoculated with suspension exposed for 10, 15, and 25 min., no animals developed paralysis. The usual numbers of animals in the control groups injected with untreated virus suspension became paralyzed.

In further experiments the amount and depth of virus suspension and the distance from the light were varied. Thus, in one experiment 600 ml. of a 1:300 dilution of virus suspension 2½″ in depth was exposed to ultra-violet light 9″ from the source of the light. This was to determine the effect of light at greater depth of material. In another experiment 60 ml. of 1:300 dilution ½″ in depth were exposed at the distance of 3′ in indicate the effect on the virus of increased distance from the source of light. Samples were removed from the bottom of the virus suspension by syringe and needle, care being taken not to agitate the liquid during the period of exposure.

In each experiment specimens were taken at 5, 15, and 30 minutes. Two animals died without paralysis in the series where the virus suspension was 2½″ deep. These animals were in the group where virus suspension was exposed for 15 min. to ultra-violet irradiation. The virus suspension exposed only 5 min. 3′ from the source of radiation caused paralysis in one mouse. Thus, only 3 animals of the 36 used in irradiation experiments became paralyzed or died, while all but one of the

18 animals used in the control groups which received the untreated virus in 1:300 dilutions became paralyzed.

Direct summer sunlight did not, on the other hand, appear to have an equal effect on the virus. Some of the mice in each group of 6 inoculated with virus suspension, after exposure for 5, 15, or 30 min. to direct sunlight, succumbed with paralysis. As this virus suspension was exposed to direct sunlight in ½" depth, the results indicated a definitely superior effect of the ultra-violet irradiation from artificial sources.

Storage—Virus has remained viable stored in tap water at refrigerator temperature for as long as 100 days. Of 90 mice receiving the stored water containing the virus for this length of time, 38 were observed to develop paralysis. This includes two groups of 6 mice in which none became paralyzed, indicating that the virus had died in these two lots of water. In all other groups, 2 or more mice were observed to develop paralysis. In the control groups of mice, injected with the original and the diluted virus, all mice but 1 succumbed with paralysis, while in the water-control group not receiving virus but water alone, all animals remained alive.

Aeration—Aeration for 30 and 45 min. of a 1:100 dilution of virus in tap water had little apparent effect on the virus. All the mice in two groups inoculated with aerated water succumbed after developing paralysis.

NOTE: It is to be noted that this study on the efficacy of water plant operations on the removal of poliomyelitis virus from artificially and heavily contaminated water is in no way a quantitative measure of the effectiveness of these methods. Quantitative variations in technic and combinations of the methods of control must be employed before definite conclusions may be drawn. In this report no attempt has been made to show the lack of effect of chlorination on poliomyelitis virus as others[9] have shown that present chlorine residuals in drinking water are not sufficient to destroy virus.

SUMMARY

The methods of water purification commonly employed, namely coagulation and sedimentation, sand filtration, adsorption on activated charcoal, aeration, adjustment of pH and storage, have failed when tested individually to remove completely poliomyelitis virus from artificially heavily contaminated water. Results of this study indicate that ultra-violet irradiation from artificial sources has an effect on the destruction of the virus in water greater than that exerted by direct sunlight, and is more effective in inactivating or destroying virus suspended in water than any single purification method commonly utilized.

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The Improvement of Local Housing Regulation Under the Law

An Exploration of Essential Principles*

The Need for Reëxamination of Housing Controls

Objectives of the Committee's Study—The public health elements of housing have come increasingly to be recognized as essential parts of the housing problem. The world-wide movement for adequate shelter is justified primarily by the demand for living conditions which are compatible with physical and emotional health.

For generations the law has recognized the right of public health authorities to act for the improvement of housing conditions, and many health officers have made substantial contributions to the control of this problem through law enforcement. Accomplishments in this direction, however, have necessarily been limited. Families do not live in slums by preference or by chance. Except in rare instances, they live there because they are poor. The demolition of bad houses where there are no good ones at a rent which can be paid by the slum dweller, or the requirement of structural alterations which cannot be economically justified, may deteriorate rather than improve the total community situation.

With the development of government-assisted programs of slum clearance and low-rent housing, conditions have radically changed. Though such enterprises are now necessarily interrupted by the war, they must be resumed on a greater scale in connection with post-war planning for reëmployment and reconstruction. As this occurs, it will be possible in increasing degree to proceed with the elimination of substandard dwellings. The hands of the health officer and of the fire and building inspector will be freed to accomplish results hitherto unattainable. Furthermore, rehabilitation and slum elimination carried out in cooperation with local housing authorities may be so organized as to contribute materially to sound and constructive community planning. In addition, it is essential that the clearance of slums and construction of new housing through public subsidy be supplemented by regulations that are adequate and enforced to prevent the development of more slums due to the absence of proper control over new residential construction.

The present codes and laws which deal with substandard dwellings are generally inadequate, and the machinery of administrative control wasteful and chaotic. There is a valuable opportunity at the present time to study rational and constructive approaches to the problems of legal control of substandard housing.

The Committee on the Hygiene of Housing has received numerous requests from local and state officials for advice on the drafting or revision of housing regulations; and the companion Committee on Housing of the Health Officers Section of the Association has recently been in correspondence with over forty health officers in regard to this and related problems. No adequate solution can be obtained by a scissors-and-paste adaptation of existing laws. The whole

* Report of the Subcommittee on Housing Regulation, of the Committee on the Hygiene of Housing, Committee on Research and Standards.

problem must be thoroughly studied from a fundamental viewpoint, with special reference to the powers which are delegated to the health officer for the framing of regulations.

The present memorandum is a preliminary exploration of this important field. Later releases of the committee are planned to review significant practical experience, both under the usual forms of housing regulation and under new types of laws and ordinances; and also to formulate, in so far as practicable, definite quantitative standards, specific administrative and enforcement provisions, and skeleton or model drafts of basic legal instruments.

It is obviously impossible to consider the housing responsibilities of health departments alone, for they interlock at many points with those of other agencies. In its first exploration of the problem, therefore, the committee conducted extensive correspondence with health, building, and housing officials throughout the United States, and with leading unofficial housing agencies, to canvass their opinion and experience as to the most feasible types of housing control.[1]

Two viewpoints were outstanding in the replies received. First, that mere amendment of building codes as we now know them is not a practicable means of establishing the necessary standards for future housing construction, primarily because these codes are concerned mainly with the structural adequacy of buildings in general, and only to a minor degree with the healthfulness and livability of dwellings. The drafters of building codes, while prescribing, as they must, for a diversity of structure-types, have seldom attempted to cover the full range of essential housing standards which derive from broad considerations of healthfulness and well-being in the home. This conclusion in some form was the one most generally advanced in support of a new type of comprehensive housing code, which should include at least the dwelling provisions of the building and related codes, but should cover a considerably wider range than these traditional documents.

The second striking feature of the correspondence was the wide agreement that public health officials should begin to assume real leadership and responsibility in developing control of conditions in existing dwellings, and that health department responsibility for occupied housing should be clearly recognized in any future type of housing regulation, whatever the division of responsibility for new construction. This does not mean that the health department must necessarily enforce such regulations in every community, but that when it does not itself enforce them it should accept its responsibility for seeing that they are enforced, to the point if necessary of insisting that it be given this power and authority.

These views have strongly influenced the committee, and they form the point of departure for the present memorandum. This first statement has also been influenced by the committee's critical study of the composite structure of state and local housing regulations in the State of Connecticut, made in coöperation with the new Housing Division of the Connecticut Department of Health, during which many elements of confusion and weakness in the typical pattern of housing regulation were clearly revealed.

Special attention will be given here to the regulation of existing housing, not only because of its basic significance to health departments and their possible future housing programs, but because of its peculiar importance during the war. Since the war is bringing virtual cessation of normal building as well as of the public housing program, it will necessarily prolong the use of substandard or marginal dwellings everywhere. In centers of war activity it is also increasing

the burden of overcrowding. In some such areas it is causing pressure for considerable increases in dwelling capacities by the conversion of large dwelling units into small ones. Regulatory powers must therefore be made effective both in order to conserve needed structures generally and to control special wartime problems of occupancy and alterations. Furthermore, in some localities the war is producing temporary housing that should be removed when the crisis ends, and local authority may be necessary to bring this about.

The Pattern of Housing Regulation—Adequate control of housing from the viewpoint of public health requires many forms of protection: the adoption and enforcement of health, safety, and amenity standards for new dwellings of both single- and multi-family types, including their environment; the development and enforcement of standards of maintenance and occupancy for existing family dwellings; the treatment of peculiar problems (both as to initial character and operation) of special dwelling facilities such as lodging houses, trailer camps, hotels, and dormitories; and the extension of suitable controls to the built-up areas beyond the corporate limits of cities so as to preclude the development or continuance there of slums. In addition, the protection of rural housing has received little attention. It presents a challenging problem that must receive careful study. It cannot be forever neglected.

The usual instruments for local housing regulation are of several types. The construction of new buildings is commonly governed by codes and ordinances forming part of the state or local organic law, enforced by building, zoning, and fire departments. The health status of the occupants of existing dwellings may be protected either by similar ordinances or by health department regulations having the force of law, but authority in the latter case is often limited to certain classes of dwellings such as tenements and lodging houses; single- and two-family dwellings are commonly unregulated as to conditions of occupancy except where fire hazards or public nuisances are involved.

Among the traditional instruments for housing regulation the local building code is, generally speaking, the most elaborately developed. It is, however, largely restricted to new construction and, as previously noted, must cover many types of structures in addition to dwellings. Zoning ordinances deal with land coverage and segregation of alien uses from dwelling areas, but they do not affect existing structures. They are often weakened by their preoccupation with the problems of business areas and the preservation of single-family districts, or by undiscriminating grants of variance. Frequently their standards are too low to prevent congestion of buildings on the land. The maintenance of existing dwellings is sketchily dealt with—if at all—in building construction codes; health and fire department regulations may contain additional provisions on upkeep, services, and occupancy, but seldom are these regulations for existing dwellings either complete or conveniently accessible *in toto*. Exceptions do exist, but they are rare. The creation and operation of lodging houses, trailer camps, or other special dwelling types are often covered by special laws or ordinances, but here as in other fields of regulation the controls are likely to be based on models borrowed from other communities rather than upon discerning study of local problems. Suburban areas commonly have only partial controls. Rural districts usually lack them altogether, or may be saddled with statewide regulations which are meaningless in the absence of machinery for enforcement.

The composite effect of these various types of regulations that exist in most communities is anything but orderly or

clear, and the practical results of the confusion are extremely serious. Housing provisions may be generally unknown and unenforced, in part because they are lost in chaotic documents. Health, building, and fire departments may operate each in ignorance of the others' activities, if not in fact of their responsibilities. Inspection is divided and may be sporadic and wasteful of man power. Broad powers, loosely worded, may hamper enforcement through the officials' fear of personal liability. In times of housing surplus unfit dwellings are not destroyed, as they might often be by the exercise of clearly existing powers; in times of shortage they may be occupied with no proper regulation in terms of special maintenance required. Both the layman and the courts are more likely than not to be ignorant as to what comprises existing housing regulation, and many an important test case may escape prosecution or be settled to the detriment of the community as the result of nothing more sinister than the prevalence of sheer confusion.

Numerous cities and several of the states, in an attempt to deal with these problems, have adopted housing codes which aim to provide more or less coordinated regulation. Four noteworthy types of controls developed in recent years will be analyzed in this and later studies of the committee:

1. General housing laws such as those of Michigan and Iowa (based on Lawrence Veiller's model housing law of 1920). These deal with both construction and upkeep of single- and multi-family dwellings, usually in cities above a certain size. Such laws may provide for incorporating the pertinent sections of the local building code, but they set forth additional requirements on such matters as sanitary facilities, required space, lighting, heating, and repair. Such acts may define the responsibility of building, health, and fire departments; in some states they authorize the creation of a special housing-enforcement official. (Twelve states are known to have enacted housing statutes, but the majority of these are the old-line type of tenement-house regulation.)

2. Comprehensive local codes which incorporate the essential features of general housing laws (such as discussed in 1).

3. Special laws or ordinances, defining unsafe or substandard dwellings, and prescribing remedies through repair, abatement, closure, or demolition. These have been adopted in a number of states and cities, in an attempt to control the most flagrant conditions in existing dwellings.

4. Enabling acts which omit specific regulations but delegate the power of drafting these to a local officer or commission. This type of control is a recent and promising development which will be considered in some detail later in the present statement.

The Legal Basis of Housing Regulation

If broad and constructive results are to be attained, well defined powers must be placed in the hands of appropriate enforcing authorities. What shall be the basis of these powers?

General Limits of Protection — It seems clear, first of all, that the requirement of minimum conditions essential to health and safety should apply to all types of structures used for human habitation. It was natural that multiple dwellings and rooming houses should have received first attention in the development of housing control, since these buildings involve specific problems of manager-maintenance with regard to shared stairways and passages, common sanitary facilities, fire escapes, and the like. Yet regulation must not stop short at this point. There seems no valid reason—either legal or social—why the inhabitants of one-family and two-family houses should not also receive legal

protection, and it is a sign of progress that most of the regulations adopted in recent years have broader coverage than the earlier laws concerned primarily with tenements.

It is sometimes suggested that the regulation of housing should be limited to rented homes; but this distinction seems no more reasonable than one based on the size of the building concerned. The parent has no more vested right to prejudice the health and safety of his own children or his neighbors than the landlord has to work similar injustice on his tenants. The members of a family living in their own home should enjoy modern health protection under the law as much as the members of a family living in a rented dwelling. In some cities owned homes in certain low-grade areas are on the average more dangerous than rented homes. It would clearly be fantastic to clean up a block of rented homes leaving isolated owned dwellings in the same block in a hazardous and insanitary condition. It is recognized, of course, that in some communities psychological factors may restrict the degree to which owned homes can be regulated.

Another possible criterion for limiting the field of operation of a housing code is the size of the community or the density of population in the area concerned. From the standpoint of practical expediency it is obvious that the same standards cannot be enforced for isolated farm houses that are practicable for city tenements. There is even some logical ground for such a distinction, to the extent that dangers of conflagration and of epidemic disease constitute a greater hazard in crowded communities. The distinction is, however, one of degree rather than one of kind.

The committee is therefore of the opinion that within any given homogeneous area there should be substantially uniform legal requirement of appropriate basic essentials for health and safety in all buildings used for human habitation, irrespective of types of buildings[2] or ownership.

Regulation of New Construction and of Existing Dwellings—Historically, in legislative enactments, the control of new building and that of existing houses has usually been kept separate, for two reasons. In the first place, regulations for new construction have commonly been—and must practically be—more rigorous than those for existing dwellings. In the second place, enforcement of the two types of regulations has usually been in different hands. The approval of plans and the inspection of construction have been conducted on established engineering principles by building and fire departments, while the problems of occupancy and maintenance have been dealt with largely by health and fire departments.

From the long-range standpoint of reasonably coördinated local housing policy, such a sharp separation of functions is perhaps unfortunate, but there is no simple universal remedy.

The committee believes that it may be desirable in the long run to combine or coördinate all types of housing regulation in a comprehensive housing code, but it recognizes serious obstacles to such a course in most communities. For immediate purposes, in most places it seems necessary to treat the regulation of new construction and of existing dwellings as separate problems. Although the present statement is chiefly concerned with the problem of existing housing, the committee plans in its future studies to consider and appraise the various possible means for increasing coördination of responsibility in these two fields.

It is believed that real and significant progress can be made in many communities in the immediate future by the following steps: (a) the formulation or revision by the local health department of regulations for existing dwellings, in

order to bring these controls into reasonable conformity with contemporary standards; (b) the compilation of those sections of the building, zoning, fire, or other ordinances and regulations which affect new dwelling construction, and the distribution of these provisions in convenient form not only to builders but to all interested official agencies, including the local health department; (c) a critical study, by official and citizen groups concerned with housing, of the coverage provided by the regulations cited in (a) and (b) above as a basis for developing such integration of housing control as may be locally desirable.

Direct Statutory Control vs. Rule Making under Delegated Authority—The next problem to be considered is whether the control of existing dwellings should be in the form of a detailed ordinance enacted by the regular legislative authority of the area or in the form of more flexible regulations promulgated by an expert body or official to whom the task has been delegated by proper legislation. Codes for new construction have generally been of the former type, while the problems of occupied housing —aside from fire department inspection—have been left largely to the local health department. This responsibility has perhaps been more honored in the breach than in the observance.

In connection with maintenance and occupancy standards in existing dwellings, the arguments for control under flexible administrative regulations are very strong. A considerable proportion of such dwellings will necessarily fall below any reasonable standard for new construction, either as a result of:

1. Factors in original construction which cannot be retroactively corrected; or
2. Insanitary, unhygienic, or hazardous conditions due to deterioration, defective maintenance, or improper occupancy.

In dealing with problems of this kind, the clear and specific formulation of detailed ordinances would seem to simplify enforcement. On the other hand, any standards which can be immediately enforced in a given community will almost invariably fall far below the minima essential for health and safety. There is danger that such low standards, if embodied in ordinances or statutes, will become so crystallized as to halt further progress. A given city, for example, enacts a certain standard for the ratio between the number of dwelling units in a tenement and the number of toilets required. This may be the best ratio which it is possible to approach at the time of adoption. Within five years that standard may be so low as to prevent improvement toward a more desirable ideal which would otherwise be reasonably attainable. It is therefore particularly desirable to formulate standards for existing dwellings in such a way that they can be readily and promptly modified to make possible a maximum rate of progress.

In some communities there exist housing ordinances affecting existing structures that are effective and are enforced. They have been modified and improved from time to time, and have stood the test of courts and contain adequate regulations in specific form.

Even where good housing codes are administered by other agencies, the local health department must probably assume certain fundamental responsibilities with respect to occupied housing. Where there is no comprehensive regulation the health department has potential powers which may be called upon to meet the need. For the undertaking of such a task there is useful precedent in the historic and generally accepted rule-making powers of the health department. Local health departments in many states now have the power to formulate a sanitary code containing detailed requirements for realizing the broad general purposes of protecting the public health. Such a code of regulations has the advantage of being pre-

pared by public health experts and the even greater advantage that it can be readily and progressively amended to conform to changing needs and possibilities. It is not a question of formulating absolute standards of perfection, but of proceeding step by step from an unsatisfactory status toward an ideal as fast as expediency and public opinion may permit.

In communities where the rule-making power of the health department is broad and well established, this department, in coöperation with local building, zoning, and fire authorities as desirable, can proceed under its general powers to formulate regulations under which it may order such corrections as are essential for the protection of life and health, condemning such properties (after due notice and opportunity for public hearing) as cannot meet, or after a reasonable time have not met, the fundamental needs of health and safety.

Where such basic rule-making powers are not considered legally or psychologically adequate, a city ordinance or state law could be passed specifically authorizing the local department of health to formulate a body of regulations for preserving health and safety in all existing dwellings designed or utilized for human occupancy.

In Baltimore, for example, an ordinance of this type was added to the *City Code* in 1941.[3] After certain general provisions fixing the responsibility for cleanliness on the occupant and the responsibility for repair on the owner or agent it is provided that

1. "Whenever any dwelling, or any building, structure, excavation, business pursuit, matter, condition or thing in or about a dwelling on the lot on which it is situated, or the plumbing, sewerage, drainage, light or ventilation thereof is found by the Commissioner of Health to be dangerous or detrimental to life or health, the Commissioner of Health may order that the matter, condition or thing be removed, abated, suspended, altered or otherwise improved, as his order shall specify."

2. "Whenever it shall be found by the Commissioner of Health that a dwelling is unfit for human habitation, or dangerous to life or health by reason of want of repair, of defects in the drainage, plumbing, lighting, ventilation or the construction of the same, or by reason of the existence on the premises of any condition likely to cause sickness or injury among the occupants of said dwelling, or for any other causes affecting the public health, the Commissioner of Health may issue an order requiring such dwelling to be vacated."

3. "The Commissioner of Health is hereby authorized and empowered to make and adopt such rules and regulations as he may deem proper and necessary for the enforcement of this ordinance for the better protection of the health of the city."

This type of ordinance, though its efficacy has not been fully tested, seems to offer a most valuable approach. Such broad delegation of powers may of course be challenged in litigation, and it will be of interest to follow suits which may arise under this or similar ordinances. There is, however, abundant court experience in public health cases to suggest that all reasonable exercise of these powers in good faith will be upheld. Such an enabling act may be adopted on either the state level or—if authorized by grant of power by the state—the local level. If it be a state law, the power to formulate specific regulations should preferably be delegated to local health authorities. A statewide body of regulations would necessarily have to be very general and either too weak for advanced urban areas or too severe for many rural areas. Furthermore, in rural areas the machinery for enforcement is generally lacking, and it is fundamentally unsound policy to promulgate regulation which cannot be enforced.

Whether housing regulations be in the form of statutory enactment or administrative regulations, it is obvious that their provisions should be correlated with those of local zoning ordinances.

In any case, when the sum of defects present in a dwelling is such as to con-

stitute a serious menace to the health or safety of the occupants and where such condition cannot be—or after a reasonable time has not been—corrected, the health officer should have power to forbid continuance of human occupancy or to order demolition.[4]

Specific Objectives and Content of Housing Regulations

If we accept the general principles of approach outlined above, the questions next arise: For existing dwellings, what conditions of use, occupancy, and maintenance should be set as prerequisites to continued habitation? With respect to new housing, what factors should the regulations cover as to site requirements, construction, interior layout, and equipment? The same factors must be considered, generally speaking, whether the controls take the form of a specific state housing law or local ordinance, or that of administrative regulations under an enabling act.

New Construction—While the committee is not here dealing primarily with either the administration or the detailed content of building codes or other controls for new construction, it has become clear in our studies thus far that the usual building code fails to provide certain safeguards which are essential from the viewpoint of health, safety, and amenity. Proper regulation of new construction is of such importance that it cannot be passed over lightly even in a statement dealing essentially with existing structures. We therefore call attention to the scope and some of the principal weaknesses of typical building codes, in order to bring these to the attention of public health officials or others who should be concerned with long-range improvement of housing regulations.

Certain of the health and safety regulations needed for new dwellings are well handled in the usual building code, and these are clearly outlined in recent literature on building codes, including bulletins on code arrangement by the National Bureau of Standards and the American Standards Association.[5] These model documents set forth factors of building construction, design, and equipment which should be controlled. The form of their recommendations approximates a statement of the fundamental objectives of regulation for each topic considered.

Building codes drawn according to these recognized models will cover such health, safety, and amenity factors in new housing as the following:

General building restrictions: construction safeguards within fire districts, restrictions as to building height with different types of construction, and similar factors.

Light and ventilation: number, area, and openability of windows; requirements for artificial lighting; and (perhaps rather obliquely under such a heading) the sizes of habitable rooms and the regulation of their occupancy.

Means of egress: number, types, and location of exits including fire escapes; width of stairways and exterior doors, etc.

Construction requirements: quality of construction and features of wall and floor design needed for structural safety.

Fire protection: standards for fire-resistiveness with various types of construction.

Chimneys and heating appliances: Standards of design and construction of heating installations are prescribed, but the proportion of rooms to be provided with heating facilities is commonly ignored, as are measures for the control of smoke.

Electrical and plumbing requirements: These are commonly handled by reference to separate codes. Such codes specify the quality of installation if it is made, but often do not require that basic facilities be actually provided.

It is urged that in future regulations for new housing construction these usual items of building code coverage be supplemented by regulations on at least the following subjects:

Site requirements: New dwelling construction should not be allowed (and building permits should not be issued) unless adequate water supply of good sanitary quality and adequate sewage disposal facilities exist, or

unless their development is shown to be feasible and is included in the construction scheme. Restrictions should be placed on the development of swampy or floodable lands, and there should be requirements for compliance with local subdivision regulations and conformity with master plan provisions for streets and roads.

Sanitary provisions: A new type of chapter should supplement the traditional plumbing code provisions on quality of materials and workmanship, setting definite minimum standards as to the number and types of sinks, toilets, and installed bathing facilities to be required in various types of dwellings. Running water, toilet, and bath or shower should be required in every urban dwelling unit. Cross-connections and back-siphonage should be clearly dealt with if they are not handled in a plumbing code.

Room sizes, layout, and space requirements: Code regulations in the future should seek to define room sizes in such a way as to permit the installation of necessary furnishings and allow for unimpeded circulation and the exercise of each room's basic functions under normal occupancy. Reasonable storage space should also be required.

Household equipment: In view of the "industrial hygiene" problems involved in the performance of some 60 person-hours of housework per week in the average home it would seem reasonable to set some standards of adequate facilities for cooking, laundering, and food preservation.

Vermin and insect protection: Appropriate provision should be made for rat-proofing, and for termite protection and mosquito-proofing in regions where these are necessary.

Other new types of chapters may be needed to deal with problems of miscellaneous mechanical equipment (installed refrigerators and such types of forced ventilation systems as may occur in multiple dwellings) and secondary buildings on the same plot with residential structures.

A most encouraging attempt to remedy some of the weaknesses of the usual building code is found in the federal Central Housing Committee's recent dwelling construction code recommended for war housing areas.[6] This document appears to mark a distinct step forward in dealing with some of the customary shortcomings indicated above.

Little consideration has yet been given by the Committee on the Hygiene of Housing to the usual coverage of zoning ordinances, but it is believed that if these were more carefully drawn with respect to standards of healthfulness in housing they might be made the instrument for some of the environmental regulations clearly needed but lying beyond the scope of construction codes. They should aim to avoid overzoning for industry and business, and to prevent too easy modification.

Existing Dwellings—For the control of existing dwellings there is much less systematic doctrine or practical experience than that available for new construction in building and related codes. Aside from the few states having general housing laws (some of which appear to cover matters of occupancy and maintenance with considerable skill) and the rare instances in which cities have housing codes or rather complete housing sections in building codes, control of occupied housing is usually carried under the broad nuisance powers or scattered specific provisions of sanitary codes or building codes.

The committee has not yet found any set of regulations for existing dwellings which can be taken as a wholly satisfactory model. During the Connecticut study previously cited, a tentative series of topics was therefore devised, under which the essential problems of structures in use may be analyzed. It is recognized that some of these categories may need to be combined or altered in the drafting of practical regulations. However, the listing of these topics, with illustrative statements under a few of them as to the purposes which should be served by specific regulations, will indicate the range of problems involved, and will reveal significant gaps in the usual type of occupancy regulations.

Occupancy and overcrowding: To prescribe minimum standards of space per family or per person (probably in terms of room units or floor area rather than cubic space, the

usual criterion) and to assign responsibility for determining the capacity of dwelling units[7]; to specify types of rooms (such as those without windows, those of seriously deficient size, privacy in circulation, shape, lighting, heating, etc.) which shall not be used for human occupancy; to define "person" for purposes of enforcement and to specify the ages at which separate sleeping rooms should be provided for children of opposite sex; to establish occupancy norms for special types of dwellings such as lodging houses, trailers, and dormitories, and norms for non-typical spaces (basements and attics with living quarters) in common types of structures; to deal with special occupancy problems in case of disease.

Permitted uses, use-conversions and alterations[8]: To limit the types of nonresidential use which may be introduced into dwelling structures or their immediate environment; to safeguard residential uses from hazard or nuisance connected with such nonresidential uses; to provide for needed physical separation between residential and hazardous nonresidential uses in mixed structures; to assure the maintenance of structural soundness and safety in relation to use-changes involving alteration; to insure that suitable occupancy controls shall routinely be invoked in relation to changes of use; to control permitted changes in type of residential use (including space and sanitation requirements for conversion to light-housekeeping units).

Structural soundness and repair: To require maintenance of repair of all major elements of a dwelling as necessary to provide: (a) tightness to the weather; (b) reasonable possibilities of heating; (c) control of rat harborage; and (d) reasonable freedom from danger of bodily accidents or structural collapse. To provide for substantial compliance with standards for new construction in the event of major voluntary alteration or restoration.

Provision and maintenance of sanitary fixtures[9]:

Maintenance of utility supplies (water, electricity, gas) in safe operable condition

Heating, lighting and ventilation of habitable rooms

Lighting and cleaning of shared spaces such as public halls

Storage and disposal of garbage and other refuse

General sanitation and control of nuisances

Obstructions to egress; other specific fire hazards

Fire protection equipment

Control of rodents and insects

Safeguards for abandoned or unused dwellings or accessory structures.

These, or items like them, are the elements out of which it would seem a framework for clear and adequate housing regulation can be developed.

Administration and Enforcement of Housing Regulations

Whether the fundamental housing standards are formulated in an ordinance or in a set of regulations, or in a combination of the two, they will be ineffective without an adequate force of trained inspectors and an orderly system of administrative enforcement. It is most desirable that both the inspection service and the legal procedures for abatement should be coördinated in a given area.

Value of Coördinated and Systematic Inspection—The examination of plans for new construction and the inspection of actual work performed on new buildings may well be carried out—as at present—by building departments and fire departments. So far as inspection of occupied dwellings is concerned, we have in many cities at least three different groups of inspectors—those of the health, fire, and building departments—operating in the field. It would seem wise to consider the feasibility of coordinating such field inspection services. Instead of sending an electrical inspector one week, a fireman the next week, then a plumbing inspector, and finally a sanitary inspector to the same house, it might be possible to correlate the work of these inspecting staffs so as to promote efficiency and economy. In small communities it may often be impossible to have more than one inspector reasonably qualified to deal with the various fields involved. Such an inspector might most logically be attached to the local health department, but in one city the building department makes all such inspections in residences except for fire hazards and this plan works satisfac-

torily. In cities where three groups of inspectors are working it should be feasible to provide for some coördination of effort without impairing the legal powers of any department concerned.

One of the major advantages of a combined or coördinated inspection service would be the unification of records, so that copies of all information relative to a given piece of property could be made available in one place to all groups concerned with housing (including relief and welfare agencies, whose interest in, and possible contribution to, improved housing regulation is perhaps too little recognized).

It is obviously essential that the inspection staff should be adequate in number, capacity, and experience. Elimination of overlapping inspection responsibilities should increase the effectiveness of available personnel. At least one recent study of inspection practice suggests that little or no more man power would be required for thorough and systematic inspection in problem areas than is now used for sporadic inspection in response to nuisance complaints.

The common practice of inspection only on complaint is completely ineffective. Inspection procedures should be designed not only to secure corrections in individual premises but also to give an over-all measurement of housing defects and needs throughout the problem areas of a community, as a guide to appropriate long-term programs of enforcement or reconstruction. The importance of systematic inspection in developing effective housing regulation can hardly be overstressed. Inspection of this type, together with enforcement graded according to the quality of housing areas, is the distinguishing feature of the notable recent work in housing inspection by the Memphis Health Department.[10] The Committee on the Hygiene of Housing has developed and tested an appraisal technic to serve the same purpose, applicable in any city and suitable for execution by the health department or a coöperating group of city agencies.[11]

Systematic inspection is practised in Cincinnati under a modernized building code with comprehensive housing regulations for both new and existing dwellings. For at least ten years substantially all residential inspections, except those for fire hazards by the fire department, have been done by the building department. This department has a special force of housing inspectors which under a special supervisor inspects annually every dwelling in the major substandard housing areas, issues orders, and makes follow-up inspections to see that the orders are complied with. For several years every building in these areas has been graded each year as to condition and occupancy, as has each census tract in the area. Vacation of unfit buildings and of those containing serious violations of the law is routine, as is condemnation of unsafe structures. For a period of ten years an average of from two hundred to four hundred dwelling units in unfit buildings have been demolished annually under orders of the department.

Proposals now under consideration in the City of Hartford, Conn., suggest a possible realistic method of coördinating not only inspection methods but the underlying regulations of various departments. In 1939 an act was passed by the state legislature providing that

> ". . . the Court of Common Council of the City of Hartford, in addition to the powers vested in it by law, shall have power . . . to make, alter and repeal ordinances for the following purpose: to establish a coördinating authority for the enforcement of police powers relative to the repair, vacation and demolition of buildings and dwellings, which coördinating authority shall include the Chief of the Fire Department, the Health Officer and the Building Supervisor."

The joint committee established under this act has outlined its functions as follows:

1. To assign, through proper legislation or administrative changes, definite and appropriate inspection responsibilities of each inspectional agency.
2. To formulate procedure, reporting and recording forms designed to get maximum coverage and minimum duplication in each inspectional field.
3. To establish policies and plans for systematic inspection of all substandard buildings and dwellings in the city.
4. To provide for centralized maintenance of all inspection records and reports of each building in the city.
5. To establish in the committee office a definite procedure for:
   a. Reinspection or "follow-up" inspection by special inspectors; and
   b. The handling of complaints in the several fields of inspection.
6. To serve as a central clearing house for information on the conditions of buildings needed by citizens, other governmental agencies and local organizations.
7. To formulate, as needed, recommendations to the Court of Common Council and the State Assembly relative to desired additions or modifications in building and dwelling maintenance standards.

Analysis of the Hartford ordinances prior to the proposed coördination showed that 19 different items of inspection were specifically recognized, 4 being assigned to the health department alone, 3 to the building department alone, 1 to the fire department alone, 5 to both the health and building departments, 2 to both the health and fire departments and 4 to both the building and fire departments! Under a new plan proposed by the joint committee, 9 of these problems would be assigned to a combined inspectorate of the building and fire departments, and 8 to the health department, leaving 2 (ventilation and heating) to be jointly handled. Both the inspection staffs would operate under the direction of a group representing all three departments.

The Place of Joint Enforcement Procedure—The experience of other cities seems to support the view that joint departmental action, even when informal, may be much more effective than the customary programs of separate enforcement. The recent cases of two small Eastern cities are enlightening. In one community the health department, about two years ago, employed a sanitary engineer to initiate a systematic program of housing inspection. The department has been working closely with the local housing authority on the program of equivalent elimination embodied in the agreement between the city and the housing authority under the U. S. Housing Act. Some two hundred dwelling units were selected—as a result of the health department's inspection program—as being substandard to a degree requiring immediate action. The owners of one hundred of these properties have thus far been given orders to appear before a committee made up of representatives of the health department, the building inspector, the fire chief, and the housing authority. The owners have been given a chance to be heard after the specific requirements necessary to bring each building up to standard were outlined. They have been offered the choice between rehabilitation or demolition, and not one of these owners has legally contested the action of the committee.

The other city has a part-time health officer, a part-time sanitary inspector, and no housing authority. The sanitary inspector, along with the building and plumbing inspectors, was recently sent out to cover a group of dwellings which had been the subject of frequent complaints. The owners were summoned before a committee consisting of the health officer and the three inspectors concerned, and were given notice as to the varying periods of time in which specific gross violations must be corrected. Here too compliance has generally been obtained to the extent that the current shortage of building materials would permit.

It seems clear that much can be accomplished without waiting for the de-

velopment of fully coördinated legal instruments, by the simple expedient of pooling the technical knowledge and prestige of health, building, and fire departments [12] for enforcement purposes in the worst slum areas. The alert chief executive can bring about such joint effort by administrative action wholly within his present powers.

In all such programs, the authorities concerned must have the backing of informed and sympathetic public opinion, if substantial results are to be attained. Such support depends on organized campaigns of education and a basis of public confidence in the officials concerned. The support of the press is vital, and concerted action on the part of organized labor, citizens' housing councils, and other nonofficial bodies is of the greatest value.[13]

TOWARD A SYNTHESIS OF REGULATORY AND CONSTRUCTIVE PROGRAMS

Thus far we have been concerned only with the adequacy of regulations for their specific task of controlling the physical conditions of housing. But it should be recognized also that police power regulation can be made a powerful instrument in shaping long-range housing policy, and particularly in aiding the creative work of housing authorities and planning bodies. Here the task is obviously not that of the enforcement agencies alone, but of the entire municipal administration.

A general limitation of our present housing regulations is their usual failure to provide for enforcement other than by mandatory abatement, demolition, closure, or token fines. Housing consciousness, on the part of both the general public and the courts, has reached a new high level and it is reasonable to suppose that considerable support would be given to measures calling for a policy of economic discrimination against unfit dwellings; stipulating, for example, that in premises where substandardness is established by objective appraisal, rents may not be increased [14] or possibly even that they may not be maintained above a level set to penalize substandardness.

A second and even more striking weakness of restrictive housing laws is their general lack of any intent to employ the sanctions of police power in support of creative programs such as those of municipal housing authorities and planning commissions. Our pattern of housing regulation has been largely handed down from a time when there was no background of positive public policy for housing and city planning. Increased governmental aid on the constructive side, represented in the past few years by the public housing program and by federal aid to planning bodies, has brought strong potential forces into play for community rebuilding and for the strengthening of police power controls. If fully recognized and exploited, these forces may revolutionize our attitude toward law enforcement and the instruments under which it is carried out.

The development of official local housing standards coupled with sound inspection and appraisal technics should warrant the drafting and testing in court of more effective regulations to deal with buildings and areas below a certain standard. For example, the courts might now sustain a law which would provide that seriously substandard dwellings shall be taken out of use after a limited period allowed for amortization of any remaining economic value of the structures. Local authorities might be authorized within certain limits to forbid rent collection after an appropriate deadline.[15]

Not only should such laws, if sustained, help in deflating speculative property values which have blocked the replanning of slum areas, but they would serve notice on communities as to the number of dwellings to be replaced

by a given date. Local housing and planning bodies would thus be stimulated to more vigorous programming and search for funds. Furthermore, since the economic value of the worst houses would presumably have been liquidated during the period of grace, it should be possible within a reasonable time to clear slums without payment for such buildings. This is accepted practice in British slum clearance, and the lack of similar powers in America is estimated to have cost our public housing program, in a typical year, nearly $500 per new dwelling unit built.[16]

We must begin to think of comprehensive housing programs in which systematic inspection and official designation of substandardness by areas will serve as beacons to guide the agencies of reconstruction into slum areas where improvement under the police power is hopeless, but which may offer prime opportunity for governmental or private rehousing or other rehabilitation projects. In other words, the vigorous and imaginative exercise of regulative powers may supply for the first time a method of earmarking whole districts, helping to indicate both the relative urgency and the types of constructive programs needed for improvement or rebuilding.

Several types of post-war reconstruction schemes now being officially considered are chiefly based on large-scale slum clearance and housing construction, both as a primary aim of a democratic peace and as a basic type of public works to cushion the post-war economic readjustment. Such programs may be expected to put a premium on effective housing regulation under the police power. Large-scale reconstruction will require closer definition and measurement of substandard housing areas than we now possess, both to delimit sharply the areas needing rehabilitation and to indicate the nature of the remedies required. In the interest of sound public policy, such reconstruction programs should be able to operate with reference to legal standards which carry effective economic sanctions, so as to obviate the payment of public works funds for the purchase of dwellings maintained in gross violation of the law.

The prospect of these post-war programs should be used as leverage to bring about a strengthening of housing regulation hitherto impossible. In recent years over thirty states have passed a progressive and wholly new type of local housing authority legislation, in direct response to the benefits offered by the public housing program. Similar results should be made to grow out of the post-war redevelopment schemes, by making participation in their benefits conditional upon the development of adequate local housing standards, systematic appraisal and enforcement in substandard areas, and effective means for bringing down the purchase price of substandard houses in clearance areas.

NOTES

1. These contacts were made by the former Subcommittee on Housing Codes, under the chairmanship of the late Morton G. Lloyd of the National Bureau of Standards.

2. The exact form of the requirements must of course vary with height of buildings, class of construction, and type of use, but the degree of protection secured should be essentially the same.

3. *Ordinance No. 384*, approved March 6, 1941. A similar ordinance with respect to rooming houses (No. 507) was approved June 28, 1941.

4. It has not been possible here to deal with certain questions which in effect relate to the legal bases of housing regulation—such as the limits within which the courts will support retroactive standards for the improvement of existing buildings, and the theoretical and practical differences between enforcement at the level of mandatory repair or closure on the one hand, and demolition of substandard structures on the other. These questions and their meaning for the drafting and enforcement of housing regulations will be explored in future studies of the committee.

5. See *Preparation and Revision of Building Codes*, National Bureau of Standards, *Report BMS 19* (May, 1939); and *Building Code Arrangement*, Building Code Correlating Committee of the American Standards Association (Mar. 5, 1937).

6. *Recommended Building Code Requirements for New Dwelling Construction; with Special Reference to War Housing*, prepared by Subcommittee on Building Codes, Central Housing Committee on Research, Design, and Construction (April, 1942, preliminary issue; printed edition to be published by National Bureau of Standards).

7. Important administrative questions arise in this connection. The usual type of occupancy regulation

in terms of cubic feet per person tends to be meaningless except for enforcement in extreme cases, since usually no agency is made responsible for designating the legal capacities of dwelling units and for checking the observance of these capacities. Occupancy licenses would make it possible to designate and post the maximum number of persons permitted to occupy each dwelling in a licensed tenement or other structure, and should help materially in establishing legal responsibility for wilful violation by either tenant or landlord.

8. Provisions under this heading will tend to overlap with zoning regulations, against which they should be checked in any particular locality.

9. Similar statements of purpose apply, of course, to the remainder of these topics.

10. See Enforcement and Subsidy in the Control of Slums, L. M. Graves and Alfred H. Fletcher, in *Housing for Health*, Committee on the Hygiene of Housing (1941), pp. 18–36.

11. This technic and its application to local housing policy are described in the recent report of the Subcommittee on Appraisal of Residential Areas, An Appraisal Technique for Urban Problem Areas as a Basis for Housing Policy of Local Governments, *Pub. Health Rep.*, 57, 9 and 14 (Feb. 27 and Apr. 3, 1942); available as *Pub. Health Rep. Reprint No. 2359*, free from the Committee on the Hygiene of Housing, 310 Cedar Street, New Haven, Conn., or at 10 cents per copy from the Superintendent of Documents, Washington, D. C.

12. While these three are usually the agencies most directly concerned with housing enforcement, it should not be forgotten that numerous other official and unofficial groups are concerned with the effectiveness of housing regulation and may be in a position to give such regulation effective support. For example, in one city studied by the committee the health department reports that it coördinates its housing inspection with the work of—or makes known its findings to—the following agencies: Official—Building Department, Fire Department, Police Department, Welfare Department, City Plan Commission, City Comptroller, Zoning Board, Police Magistrates, City Housing Authority, City Law Department, Federal Rent Administrator; Non-official—Press, Housing Council, Real Estate Board, Women's Civic League.

13. For an example of the rôle which can be played by a favorable press, see Housing as a Health Officer's Opportunity, *A.J.P.H.*, 32, 9:1001–1004 (Sept.), 1942.

In Cincinnati the Better Housing League, a citizens' housing agency, coöperates closely with the housing bureau of the building department. As buildings are ordered vacated or condemned, the bureau routinely notifies the League, whose visiting housekeepers then set about to find homes for the tenants so that delay in following through on vacation procedures is avoided and the bureau chief freed from the handicap of concern about getting tenants out.

14. An act embodying substantially this principle, the so-called Minkoff Law, is in force in New York State: Laws of New York, 1938, ch. 675.

15. There is an interesting ancient precedent for this particular type of action. In the reign of Queen Elizabeth two landlords who had bought and subdivided a tenement in Hog Lane were fined and committed to the Fleet Prison; and it was specifically provided that the indigent tenants should remain in their quarters without payment of rent—the buildings to be torn down on their departure.

16. "Because of the failure of municipalities to exercise the power of clearing slums during the last one hundred years they are now paying dearly to purchase them. The present United States Housing program proceeds on the announced theory that slums will be removed by contracting with the cities to exercise their police power. Realistically, however, it seems that the greater portion of the immediate slum demolition is going to be incident to the purchase of land sites in slum districts. This will be counted as 'equivalent elimination' under the Housing Act, but it is not accomplished through use of the police power but rather by compensation being paid. The cost of acquiring slum buildings—not land—under the contracts for 1939 was placed at $23,871,431. At the same time some 49,449 dwellings were to be erected on slum or partial slum sites where these buildings were purchased. This means that for every new dwelling unit erected in a slum or blighted area approximately $480 is to be paid for slum improvements standing upon the property.

"In some cities this cost of demolition runs to sizable figures: in New York and Boston the total exceeds two and a half million dollars; in New Orleans, Baltimore and Pittsburgh it approximates one and a half million dollars, and there are a number of other cities where it approaches that figure. Thus for *every new dwelling unit* built in a slum area in which it has been necessary to buy substandard improvements, the community is charged nearly $500."—William J. Barron, Low Cost Housing and Slum Clearance, unpublished doctoral dissertation, Yale School of Law (1941).

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FUEL RATIONING

DURING the first chilly fall days there was released by the Fuel Rationing Division, OPA, a report bearing upon the Medical and Public Health Aspects of Heating Oil Rationing. This is a valuable document and, to say the least, is seasonal. It very sensibly reviews, in so far as scientific knowledge permits, the relationship between heating, ventilation, comfort and health; and one senses an intimation that, while heretofore our tendency has been to explore just how comfortably warm one might be without injury to health and efficiency, the present situation demands that we learn now just how uncomfortably cool one might be and still remain alert, precise, and well.

A temperature of sixty-five degrees Fahrenheit is to be provided for oil-heated dwellings and apartment houses, with higher ranges in special circumstances: where there are young children, the aged, the sick. Advice is given as to the desirability of wearing more clothes, and there is a delicate and restrained reference to "an extra undergarment." Adjustment to these somewhat chilly living and working conditions is going to be difficult for the citizenry of the United States. Doubtless there will be many landlords who will, in the name of patriotism, hew to the freezing line; and many tenants will attempt to settle old scores by reporting guilty and unguilty owners alike. Possibly, where sanitary or other codes require a certain heat performance on the part of building operators, the local health departments concerned may receive so many complaints they will wish that the subject of heat rationing had never been mentioned.

Unfortunately there is a paucity of scientific knowledge as to the best optimum indoor heat for homes and working places during winter, and, strictly speaking, there is no such thing as an optimum temperature, applicable in all circumstances, as humidity, air movement, activity of those exposed, and how warmly they are garbed, enter definitely into the situation. Our previous standards, therefore, have rested upon assumption rather than upon accurate information, and fuel oil rationing on a national scale may permit the accumulation of worth while data on this important subject. But even in the absence of such information, it seems likely that fuel rationing and its consequent lowered indoor temperatures will do

good rather than harm. The temperature at which offices and living rooms have been kept since the general adoption of central heating has been a part of soft living, perhaps an index of a national softening. No other nation in the world has so pampered itself in this direction as has the United States of America; and visitors from other countries, inured to inside temperatures from sixty to sixty-five degrees Fahrenheit, find it hard to tolerate the headiness produced by the hot, dry, stagnant air in our homes and public buildings.

Be all this as it may, those responsible for the public health would do well to inform themselves thoroughly as to conditions required or permitted under the fuel rationing rules. Further, it would seem wise for them to explore and study local problems and potential problems so that, in so far as is practicable, they may be in position to prevent hardships, critical situations, and violations. However, in spite of such foresight, complaints will inevitably arise and many local health officers will be called upon to investigate and to serve somewhat as arbiters. In the circumstances, it might be well for health departments to institute a simple procedure for handling such complaints as expeditiously and as unharassedly as possible.

Sixty-five degrees Fahrenheit would be as a roaring furnace compared to what the troops undergo in Alaska and Iceland.

WHAT AND WHO IS AN EPIDEMIOLOGIST: CURTAIN

AS forecast in the editorial section of the September *Journal*, with this issue the discussion *What and Who Is an Epidemiologist?* is brought to a close. The discussion has been interesting and to some extent productive, though we are inclined to doubt that it has changed many opinions. Some will continue to insist that an epidemiologist is never to be found indoors but only in the byways and hedges, tramping around on the uppers of his shoes, having worn away the soles in a detective-like search for the common source of a local outbreak. Others, who have thought of the epidemiologist as being primarily concerned with the laboratory life of causative organisms, will persist in garbing him in a white coat; and many will remain steadfast in refusing to believe that an epidemiologist is nearby unless they hear, and hear distinctly, the click and hum of his calculating machine.

We are not sufficiently omniscient to settle the matter, and like Frank Stockton, with *The Lady or the Tiger*, must leave *Journal* readers to their own solution of the mystery *What and Who Is an Epidemiologist*.

The two last received letters on the subject are presented below:

Harold F. Gray, Sanitary Engineer, of Berkeley, Calif., writes as follows:

After having spent thirty-five years in, and around the fringes of, public health work, some of the replies to your editorial on "What and Who Is an Epidemiologist?" (*A.J.P.H.*, 32:414 (Apr.), 1942) are either amusing or distressing.

Offhand, and without thinking, I can answer the question promptly by giving the names of a few men: L. L. Lumsden, W. T. Sedgwick, W. A. Sawyer, H. R. Carter, K. F. Meyer, W. H. Frost, A. W. Freeman, L. W. Hackett, William Budd, John Snow, and P. L. Panum; and there are many others.

There can be several kinds of epi-

demiologists, of which the best and most useful is the "shoe leather" man, who works all day and part of the night getting the facts down on cards, and spends the rest of the night down on his knees on the floor of his hotel room, endlessly shuffling these cards into piles until, he hopes, a significant grouping turns up.

How does one get to be an epidemiologist? No one can tell in advance. A well rounded public health training helps, but our greatest epidemiologists had merely the usual medical training of their time. Chance, the direct contact with epidemics, gives the man who is intrinsically an epidemiologist the opportunity to show forth his talents. But the inquiring mind, the desperate necessity of arriving at the truth without blinking at inconvenient facts, the determination to get all the facts, plus a certain facility (perhaps inspiration) in asking the significant questions, must be born into a man, if he is to be an epidemiologist.

Of the answers so far published, those of Allan W. Freeman and C.-E. A. Winslow are the best, probably because they have been matured out of rather long experience, but J. E. Perkins's letter has its points, and shows that he has worn out his share of shoe leather. But I cannot agree with Dr. Perkins that epidemiology is a science. It is an art, employing skillfully many sciences in its practice.

The definition given by Dr. Adams, limiting the epidemiologist to "a physician (M.D.) who investigates," or "a medical inspector," is far too narrow. Louis Pasteur was not a physician, but he was an epidemiologist at heart. Nurses, bacteriologists, veterinarians, engineers, entomologists have upon occasion and opportunity done excellent epidemiological work.

The practical definition of an epidemiologist is Biblical (Matthew, 7, 16) "By their fruits ye shall know them."

Charles F. Bolduan, M.D., Director of the Bureau of Health Education, New York, N. Y., as a comment on the subject under discussion, quotes this from the third edition of his book, *Public Health and Hygiene:*

The epidemiologist should, of course, by a physician and have had training in laboratory work and in statistical methods. It is highly desirable that he maintain a hospital connection in order to keep himself constantly abreast of clinical medicine. Knowledge of a foreign language is an asset. To be successful the epidemiologist must have imagination and a strong leaning to curiosity. He will constantly be asking himself, Why? Why do epidemics of poliomyelitis come in summer? Why has scarlet fever mortality declined so markedly? Why does leprosy spread in certain parts of the world and not in others? Why is diabetes so much more prevalent among Jews? Why is diabetes mortality among married and widowed women over forty-five years nearly three times higher than it is among unmarried women of the same age? Why the higher incidence of peptic ulcer among males? The greater prevalence of gall-bladder disease among females? The cyclic recurrence of measles, meningococcus meningitis and some other infectious diseases?

It is the constant search for answers to such questions that results in medical progress and in the more effective control of disease.

At the present time epidemiologists having all the qualifications described above are not numerous. In most health departments the epidemiologist confines his attention to the communicable diseases.

LETTER TO THE EDITOR

TO THE EDITOR:

Enemy action and the greatly increased burden of the war effort have so seriously curtailed the transportation of petroleum products that households this winter can be heated only by limited supplies of fuel oil; consequently, the problem of maintaining health in temperatures lower than usual is not only difficult, but *must* be solved to prevent illness. Before the war, the East Coast received about 95 per cent of its oil by means of tankers. So many of these tankers have gone down that an extremely serious dislocation in our petroleum distribution system has come about. In view of the resultant urgent necessity to share limited supplies fairly, the Fuel Rationing Division of the Office of Price Administration has drawn up a plan for the rationing of fuel oil in thirty states designated by the War Production Board. The fullest patriotic coöperation of your profession will be necessary, and without doubt will be given.

Basic rations for fuel oil will be allotted householders by the Office of Price Administration through its rationing boards. This ration will be based upon past consumption (adjusted for normal weather) and upon the thermal efficiency of the house as indicated by a heat loss floor area formula developed and tested by top flight heating engineers. Provision will also be made for auxiliary rations to households in which illness or the infirmities of old age make necessary temperatures higher than that afforded by the basic ration.

Application for such auxiliary ration will be made to the local rationing board by the consumer. His application will have to be supported by certification by a licensed physician. In certifying, the physician should give the date, the name and address of the householder, and should certify to the Office of Price Administration: (1) whether the illness is of an acute or chronic nature; (2) whether it is the kind which requires higher indoor temperatures, (3) the approximate temperatures required, (4) the approximate period for which this supplemental base heat is needed. The physician may at his discretion state the nature of the illness and give any additional information which will guide the board. This certificate should be given to the applicant, who will file it with the local rationing board.

The success of the rationing plan in meeting the fuel oil emergency equitably and effectively will depend in large part upon the kind of patriotism and conscientious coöperation that the medical profession has always given in times of emergency.

It is planned that Advisory Committees of three members, comprised of two licensed physicians and the County or Local Health Officer will be set up by the County or Local Medical Association upon request of the local rationing board. These Advisory Committees will function by reviewing the cases of the certificates questioned by the local rationing board when the board wishes more detailed information and professional opinion. I am sure that the medical and public health professions will coöperate actively in setting up and operating this important auxiliary advisory body.

JOEL DEAN
Director, Fuel Rationing Division

Credit Lines

A Selective Digest of Diversified Health Interests

D. B. Armstrong, M.D., and John Lentz, M.S.

FILM NOTES

The ogre of budgetary limitations always rears its ugly head when health educators lay their plans for motion pictures. Films are expensive to produce and yet health agencies have succeeded in making commendable pictures on budgets that would look like small change to the professional Hollywood producer. Non-commercial health films, of course, are not expected to be the equal in certain respects of pictures made for theatrical use. Still the ambitious health educator has long cast an envious eye toward Hollywood—wishing that he might duplicate to some extent at least the film capital's excellent settings, photography, casting, and other facilities necessary to the production of an expertly finished picture. The health educator is realistic enough to know that such resources are not apt to be within his reach. But the hope has persisted that perhaps the professional producers themselves would take specific cognizance of health as a film subject. At last, as a war activity, this has happened—the lead having been taken by such well known companies as Universal Pictures, Walt Disney Productions, and Metro-Goldwyn-Mayer.

"Keeping Fit" is the title of Universal's contribution to health education. This film is one reel in length and is scheduled for release the latter part of October. Preview audiences have received this picture enthusiastically. It is produced with the usual Hollywood finesse, with the advice and coöperation, we understand, of official federal agencies, and succeeds in blending entertainment and health instruction in a skillful manner. The importance of personal hygiene in relation to national strength is convincingly demonstrated in this picture, due emphasis being given to nutrition, sleep, relaxation, exercise, and proper medical care. These elements have been woven into a story that moves at a brisk tempo, thanks to a well written scenario and a cast of capable actors, including some of Hollywood's stellar performers. Watch for this picture at your local theater and exploit it in health department publicity releases. It is an effort that deserves the support of all health agencies.

Walt Disney Productions will offer two subjects of public health import. One is entitled "Defense Against Invasion," which is designed "to spread the gospel of immunization among Americans." Disney, with his usual flair for simplifying technical subject matter, depicts the battle that takes place in the body between invading organisms and the "corpuscle soldiers." The physiological reactions involved in the process of immunization are illustrated so clearly that this film has been hailed as "an ideal teaching medium for young children." The second Disney production is called "Food Will Win the War." Through pictorial statistics, America's tremendous food resources are shown, and the importance

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of food to a world at war and in the reconstructed world to come is convincingly set forth.

Another addition to the series of health films will come from Metro-Goldwyn-Mayer which will issue a picture entitled "The Magic Alphabet." This will tell the story of the vitamins.

Along with these professionally made productions, it is a pleasure to include a reference to a film made by the National Tuberculosis Association. "Middletown Goes to War" is its title, and we doubt that Hollywood could have done a better job if forced to produce this film within the limitations of the N.T.A.'s resources. The picture deals with a timely theme—the awakening of a community to the urgent health problems created by an influx of defense workers. The situations pictured are typical of those that communities throughout the land have faced since American industry geared itself to war production. As the story unfolds, one witnesses a clear-cut demonstration of the democratic way of life and this aspect of the film impresses the onlooker as much as does the picture's central theme—health protection for all. Knowingly or unknowingly, the producers have turned out a film that is a good implement of health education and at the same time a morale-builder in that it pictures the kind of community life, the kind of people, the kind of institutions, and the kind of principles that we are fighting to preserve. A competent cast—which, incidentally, reveals Dr. H. E. Kleinschmidt as an actor of no mean ability—enhances the film's general excellence.

To obtain "Middletown Goes To War," consult your state or local tuberculosis association or write to the National Tuberculosis Association, 1790 Broadway, New York, N. Y. The film is suitable for showing to many groups including health councils, industrial groups, schools, and theater audiences.

NOTES ON HEALTH PUBLICATIONS

Our bulging file of annual reports for the year 1941 continues to be swelled by additions, even at this late date. Among the late arrivals, two noteworthy reports deserve mention here.

From the Davidson County Department of Health, Nashville, Tenn., comes a fact-filled and nicely written summary of that agency's activities during 1941. This annual statement is considerably condensed in comparison with the department's previous reports. Yet it gives the reader a good all-round account of the work, policies, and organization of this resourceful health unit. Illustrations depicting certain phases of the department's clinical and field work are liberally sprinkled throughout the text and enhance the report's general effectiveness. Through the years steady gains in health conservation have been achieved by this department, but only a modest reference is made in the foreword of the report to the Health Conservation Contest awards which the department has received consistently since 1935. We congratulate Dr. John J. Lentz, the department's director, and his staff upon a record that many health agencies might well envy.

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The 1940–1941 annual report of the Department of Health of Peoria, Ill., is a well balanced statement of 50-odd pages of compact information presented in a thoughtful and orderly fashion. It should give the people of Peoria an opportunity to ascertain in a clear-cut way just what their health department is doing. A notable record of health advances is reported in this summary. For instance, there were no deaths from diphtheria during the 2 year period covered by the report. As to cases of this disease, there were none in 1940 and only 2 in 1941. Dr. Sumner M. Miller, the Commissioner of Health, and his coworkers have every reason to feel proud of the report and the progress

reflected therein. As to make-up, the report is attractively printed and illustrated. The title is also good—"The Health of One Hundred Thousand People." (Incidentally, why can't all annual reports be given titles? An arresting title will entice many readers who would not be attracted by a document merely labeled—Annual Report.)

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The 1942 edition of *Accident Facts*, published by the National Safety Council, 20 North Wacker Drive, Chicago, Ill., is a unique compendium of information for all who are interested in any phase of the accident prevention program, either from an administrative or educational angle. The data in the current edition with reference to occupational accidents and hazards will be of great value to an increasing number of state health departments as their work in the field of industrial health, in coöperation with the U. S. Public Health Service, is expanded. Furthermore, at least a few state and local health departments have recently shown a marked increase in interest in home, school, and farm safety. In this connection it should be stated that from the educational angle, the health department has experience and technics that should prove of outstanding value in controlling home accidents. The booklet of course contains a wealth of information regarding traffic accidents and other phases of the accident problem. A helpful index, pictorial charts, and a mine of statistical information make this a publication well worth the cost—*20 cents* to *50 cents* per copy, depending upon the quantity ordered.

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"Facts That Tuberculosis Patients Should Know" is the title of an excellent guide prepared and distributed by the Bronx Tuberculosis and Health Committee, 226 East Fordham Road, Bronx, N. Y. The text of the publication is presented in question-and-answer style. The questions were selected from inquiries actually made by patients and the range of the queries covers the whole field of tuberculosis. The authors have been particularly successful in supplying clear, sound, and informative answers. This is an exceedingly practical publication, easily read, and so organized that the reader can readily turn to the questions in which he is interested. The committee responsible for this publication has made a valuable contribution to popular literature on tuberculosis.

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A timely addition to the series of booklets issued by the Life Conservation Service of the John Hancock Mutual Life Insurance Company is entitled "Headache—A Signal." The text was written by Dr. W. W. Bauer whose health essays are noted for their naturalness of expression. This author has a knack for clothing his thoughts in good, everyday folk words—the words that people use when they get together to "talk things over." He has used this style to good advantage in the John Hancock booklet which gives all the facts about "what makes the head ache." The cover, illustrations, and typography of this booklet are likewise noteworthy and in keeping with the John Hancock standard. Copies of "Headache—A Signal" are available without cost from the company's offices in Boston, Mass.

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A report of the New York State Trichinosis Commission has been published under the title "The Meat You Eat." This is a thoroughgoing analysis of the trichinosis problem and would serve as a valuable reference source for workers interested in this health hazard. Unlike the usual dry legislative document, this report is interestingly written and illustrated with splendid photographs, several charts, and a cartoon of "the little pig that went to market so that people could go to the hospital with

trichinosis." An appendix to the volume includes copies of various legislative acts and regulations imposed in New York for the control of "tricky trichinosis." Information concerning this report may be had by addressing the New York State Trichinosis Commission, 94 Broadway, Newburgh, N. Y.

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A new monthly publication has been launched by the Department of Public Health of Flint, Mich. Its title is "Information Pleases"—a title, by the way, that is intriguing and that has a certain quality which the advertising gentry call "pull." The circulation of this publication will be limited to a selective list of one thousand, including doctors, dentists, school officials, social agencies, libraries, and parent-teacher associations. The editorial policy of the publication will be that of interpreting the health department's program rather than reporting news items. The first issue devotes its space to brief summaries of the work of certain divisions of the department and carries a "feature article" on the training and examination of food handlers. We like "Information Pleases" and believe that its monthly appearance will be welcomed by those fortunate enough to receive it.

STILL MORE ABOUT POSTERS

Perhaps readers of this section feel that we have "harped" on the subject of posters almost too much. We beg your indulgence, then, as we turn once more to this topic. Since posters are playing such a vast part in the current propaganda campaign of this and other nations, it is perhaps worth while, even at the risk of becoming repetitious, to keep health educators informed of the latest trends regarding this medium which Dr. George Gallup, head of the American Institute of Public Opinion, has recently called "the most effective and dependable means for communicating with the masses of the population."

Two important concepts concerning the use of posters were set forth a short time ago by the Graphics Division of the Office of War Information. The director of that agency maintains that posters achieve maximum usefulness when used as a *part* of a campaign in which radio, public speeches, publications, and the like are also brought into play. In other words, posters *alone* should not be depended upon to "put over" an idea. Unless integrated with other media for reaching the public, posters are apt to fail to fulfil their mission. Moreover, posters should be keyed only to urgent, pressing needs of the moment. If a dozen different posters are issued on a dozen different subjects and all of them displayed simultaneously, the public becomes over-dosed and punch-drunk because all the admonitions and instructions cannot possibly be followed. Consequently, under such conditions, posters work at cross purposes and the public does not take them seriously.

Regarding the actual work of preparing a poster, here are a few suggestions which come from *Art News*, an authoritative publication on all types of illustrative material:

First, determine in a general way the type of design and lettering. Certain ideas can best be presented by pictorial illustrations, while others need a powerful word message. In no design can these two elements be given equal importance and be seen to advantage. Decide which type is the one for your purpose. Then subordinate one of the elements, else a continuous battle will take place for attention. Usually it is better to subordinate the word message, although some lettering is used in practically all posters. Feature only *one* big message—more than that divides attention.

Unification in poster design may also

be achieved through the color scheme. A great number of colors may give a poster brilliancy and life, but when the design is displayed in company with others, it will blend into the general effect and its value will be lost in the shuffle. If the design is to stand out, it must be dominantly of one color.

Repetition of a thought, a phrase, a slogan, an appeal in posters is desirable. Repetition in the case of posters may be likened to seeing people . . . the more often we see them the better we know them.

All posters should be planned for mass appeal without distinction as to class, income group, occupation, political party, or other grouping. Posters reach all the people in exactly the same way in cities and towns throughout the nation—people see posters in passing. They therefore require a maximum of simplicity in design so that the message to be conveyed registers quickly and in such a way that it becomes firmly fixed in people's minds.

All these suggestions are pertinent to the health poster and to a certain extent a series of nine industrial health posters recently issued by the U. S. Public Health Service fulfil these desirable specifications. This set of posters features everyday precautions that keep workers "on the job"—good food, exercise, cleanliness, rest, medical and dental care. While they are distinguished by colorful design and by commendably terse health messages, one cannot help but entertain some reservations as to the artist's conception of the worker. It strikes us that there is perhaps too much unpleasant exaggeration in the artist's interpretation. Unable to decide whether or not these posters would have general appeal, comments were solicited from several sources. Here are the criticisms received:

"These posters have their virtues as well as certain glaring faults. They do catch the eye—but I see them as funny pictures. The health messages would have escaped me entirely had I not studied each poster."

"These posters are certainly a marked and revolutionary departure from the usual type of poster issued by government agencies. At first glance, I liked them. On closer examination, I seriously questioned their value as a medium for health instruction."

"They are amusing—but will the worker get the proper inspiration from them?"

"I like the technic and the bright colors. I think, however, that the conception of the worker is unflattering."

"These posters are corking—they are unusual and will appeal to the men behind the machines."

Incidentally, one poster in this series has been widely publicized in the press. Perhaps you have seen a copy of it in newspapers. It shows a dentist whose left hand bears six fingers. Whether or not this extra digit was included intentionally, we do not know. But at least this additional finger has served the purpose of garnering publicity.

If interested in securing these posters on industrial hygiene, write to the Superintendent of Documents, Washington, D. C. They are priced at *30 cents* per set, with a 25 per cent discount on orders of 100 or more sets.

EDUCATING HEALTH EDUCATORS

An innovation in practical training for health educators is announced by the Bureau of Health Education of the American Medical Association. Upon authorization of the association's Board of Trustees, the bureau and related departments will accept from time to time two graduate students, or two undergraduate students recommended from established educational institutions, for the purpose of observing the methods and technics employed in the association's extensive health program. No tuition fees will be charged, although accepted students will be expected to defray their own expenses, including transportation for short field trips in the Chicago area. It is recommended that students can spend their time to

best advantage if attendance is planned between December 1 and May 1, when the association's activities are in full swing.

The program will afford students the opportunity of observing actual work performed by the principal departments of the American Medical Association engaged in health education. Following an orientation course surveying the entire organization of the association, intensive work will be undertaken in the following bureaus:

1. The Bureau of Health Education—Students will be given instruction in office organization, the development of source and information files, the compilation of bibliographies, the formation of plans for coöperating with medical societies, methods of handling correspondence with special reference to letters from lay inquirers seeking health information, and the preparation of pamphlets including problems of lay-out, illustrating, and printing. In this bureau, students will also have an opportunity to participate in the development of radio dramatizations and the preparation of talks and speeches for lay groups.

2. The Bureau of Exhibit—This bureau will demonstrate various types of exhibits and students will be asked to outline steps in the development of a suitable exhibit for a specified type of audience. The motion picture and the slide will also be considered.

3. The Bureau of Press Relations—In this bureau, students will observe how technical papers are translated into terms understandable to newspaper readers and how distribution is effected through newspaper press associations, the radio, and other media of public information.

4. The Bureau of Investigation—This bureau will offer students an opportunity to observe how nostrums, quackery, and pseudo medicine are combated in coöperation with federal agencies, better business bureaus, and other groups. The effects of new federal legislation on foods, drugs, appliances, and advertising will be studied.

The Editorial Department of *Hygeia* will demonstrate the selection and preparation of manuscripts and related problems.

This comprehensive program will afford excellent opportunities for students to gain first-hand information on practically every subject related to health education. Inquiries concerning the program should be addressed to Dr. W. W. Bauer, Director, Bureau of Health Education, American Medical Association, 535 North Dearborn Street, Chicago, Ill.

AN EDITORIALETTE: "CONCERNING ACCELERATED PROGRAMS"

Another contribution to the series of editorialettes, submitted in response to invitations extended in these columns, comes from Pauline Brooks Williamson, Chief of the School Health Bureau, Welfare Division, Metropolitan Life Insurance Company. Miss Williamson writes as follows:

Schools and colleges are being rapidly mobilized in the all out war effort. Since time is an important factor, accelerated programs are being organized to speed up education.

Accelerated classes are not for young children at any time. The rate of child growth cannot be forced without distorting lives.

Accelerated classes for students in high schools, colleges, and universities, when first introduced, were watched with concern by educators. They feared that these classes might mean superficial work on the same old formal courses planned for a past era, demanding longer hours and more strain at the expense of the students' recreation and application of other laws of health. This would have been a waste of irreplaceable man power and a distinct advantage to the enemy.

Fortunately, our best colleges and universities report a different experience. In these accelerated classes more attention is being paid to worth while activities, and improved methods of attaining immediate goals for the war effort are being used. Such courses are a boon to the students and faculty because they bring more zest to the work, and

individual and social satisfaction in contributing necessary service to the world conflict. Scientific approaches to vital problems, and efficient methods of learning are being applied to specific purposes and to more efficient and speedy development of skills needed in industry and in the armed forces. University presidents and students report that the tempo of the accelerated classes, affording opportunity for the students to work to the utmost of their capacity, when accompanied by more vigilance in following generally accepted health practices, results in improved mental, emotional, and social health and in distinct advances in education. Real joy in a worth while job well done is part of our American tradition, and along with accelerated programs our cultural heritage is being preserved. To quote Dr. Charles Seymour, President of Yale University:

"It should be noted that the Army and Navy plans provide ample opportunity for the student to acquire the fundamentals of what are called the liberal arts. If a student's interests and aptitudes lie on the academic rather than the scientific side, he is urged to pursue them in his major course. This is wise educational policy in the matter of training men how to use their minds, and it will certainly serve the essential purpose of the Army and Navy. It is equally wise educational policy for the post-war future of our nation. The things for which we fight would lose most of their value if the classical heritage of our past were lost, and if the American people were no longer trained to appreciate the beauties of art and music and the grandeur of the world's best literature. We are fighting, not merely to survive as a free, but also as a civilized people."

Health officers can throw their powerful influence toward intelligent and patriotic acceleration in medical colleges, schools of public health, as well as in teachers colleges.

(EDITORIAL NOTE: Editorialettes from other contributors will be welcomed. Choose your own subject—preferably one related to health education. Publication of submitted material is not guaranteed, though serious consideration will be given to all contributions.)

CONCERNING LETTERHEADS

As Bauer and Hull point out in the latest edition of their text book *Health Education of the Public,* many health agencies, and especially voluntary societies, have a great tendency to cover their letterheads with lists of names, committee memberships, and the like. Some letterheads carry so much data of this sort that very little space is left for correspondence. It strikes us that this is a form of "window dressing" that could very well be deleted, with the space being given to more pertinent information.

The letterhead used by *Hygeia* is a good example of how marginal space can be utilized to convey an interesting and significant message. The left-hand border of this letterhead bears the following statement:

PEOPLE DIFFER—

No two living things are alike. Physicians do not treat symptoms or diseases. They treat patients. A list of symptoms or a long case history in a letter is no basis for a positive conclusion as to what is wrong with the patient and what he ought to do about it. There is no standard dosage for drugs applicable to all patients under all circumstances. There is no standardized diet useful to all patients suffering from the same disease.

We are glad to give all the health information we possibly can, but we must decline to prescribe and treat patients by mail. Diagnosis or treatment by mail is not scientific, and can never be satisfactory—Therefore—

WE REGRET THAT WE CANNOT—

Make a diagnosis by mail.
Prescribe medical treatment by mail.
Prescribe diets for sick individuals.
Tell an inquirer whom we have never seen whether he ought or ought not to have a surgical operation.
Predict the outcome of any treatment in any patient.

This statement, being a clear exposition of the magazine's editorial policy with regard to answering health inquiries, is a time-saver in that it makes lengthy explanations unnecessary. This is important in organizations where

large volumes of correspondence are handled daily.

Letterheads of other health agencies feature timely messages at various seasons of the year such as brief statements about precautions to take against colds or pneumonia during the winter months and how to avoid vacation hazards during the summer time. Such "healthograms," as one agency terms them, are very effective and when printed in colored ink add to the letterhead's appearance. Make the most of your margins—is our tip in this connection.

MAGAZINE ARTICLES

Recent popular magazine articles on health or of medical import:

"The ABC of Tuberculosis." Joseph D. Wassersug, M.D. *The American Mercury*, October, 1942.

"Is Everyone Allergic?" Joseph G. Lee, M.D. *Parents' Magazine*, September, 1942.

"Blitz Plague." John Kobler. *Saturday Evening Post*, August, 1942.

"Psychosurgery Cured Me." Harry A. Dannecker. *Coronet Magazine*, October, 1942.

"What's New in Color-Blindness." Gretta Palmer. *Coronet Magazine*, October, 1942.

"Plain Talk About Sterilization." Victor Hugo Boesen. *Coronet Magazine*, October, 1942.

"Sister Kenny Wins Her Fight." Lois Mattox Miller. *The Reader's Digest*, October, 1942.

"Front Lines of Surgery." Lois Mattox Miller. *The Reader's Digest*, October, 1942.

"The Story of Plasma." John Pfeiffer. *Harpers*, October, 1942.

"Doctor, Please Hurry!" Gretta Palmer. *Cosmopolitan*, November, 1942.

"A Chart on Vaccines." (No author listed.) *Good Housekeeping*, October, 1942.

"You and Your Vitamin A." Genevieve Callahan. *Better Homes and Gardens*, October, 1942.

"Blood Donations." (No author listed.) *Ladies' Home Journal*, October, 1942.

"Your Life Expectancy." Louis I. Dublin. *The American Mercury*, July, 1942.

(The above is not presented as a complete list and the articles cited are not necessarily recommended.)

JOTTINGS

Health educators have never placed much stress on the control of bedbugs for the reason that they "have not been definitely incriminated as important natural vectors of any disease." However, it now appears that bedbugs may be the source of something more serious than mere discomfort. Recent research suggests that "the bedbug is the major vector in the natural epidemiology of lymphocytic choriomeningitis." (See the *Journal of the American Medical Association*—issue of August 22, 1942—Editorial Section.) The mosquito, recently incriminated in the transmission of certain types of encephalitis, is also not without suspicion as a factor in this variety of meningitis. . . . The New York Academy of Medicine (Medical Information Bureau) and the Board of Education of the City of New York conducted an intensive course in health education for 1,500 teachers during the summer vacation season. In the Academy's assembly hall, 4 hours a day, for 10 weeks, a faculty of 30 specialists reviewed basic points in the fields of communicable diseases, nutrition, home nursing, mental hygiene, and first aid. The course was designed to equip New York City school teachers as "health wardens," to spread information to other teachers, to pupils, to parents, opening up a "second front" in health education. . . . Personal nomination for the Book-of-the-Month: *Ambassadors in White*, by Charles

Morrow Wilson, published by Henry Holt and Company, at *$3.00* per copy. Here is a wholly absorbing account of the long battle for health in the Americas as waged by Finlay, Noguchi, Reed, and Gorgas. This book contains excellent descriptions of certain tropical maladies—"maladies that may cross the barricades of the most careful sanitary inspection and gain a foothold within our own borders." The author makes clear the importance of health control measures in relation to the full utilization and development of Latin America's great resources. . . . The comparatively neglected field of social medicine (not to be confused with "socialized medicine") is to be explored and studied at Oxford University, England. An Institute of Social Medicine has been created to deal with the environmental factors that undermine physical and mental well-being. Where sociologists and public health officials are concerned with humanity in the mass, this new institute will concentrate upon the individual person in order to discover how his life may be lengthened by removing the communal causes of disability. This is a new kind of preventive medicine and the institute's work deserves attention here where we have not yet taken full cognizance of such factors as city noise and smoke, the annoyances of family life, monotonous work, economic insecurity, and worry as causes of ill health. . . . A recent issue of the *Monthly Bulletin* of the North Carolina State Department of Health carries on the front cover a likeness of Dr. Milton J. Rosenau, Head of the Department of Public Health and Preventive Medicine at the University of North Carolina. We heartily endorse the *Bulletin's* editorial comment that "Dr. Rosenau has done more for health education than perhaps any other person." . . . The New York State Department of Health has issued a number of publicity items on home and farm safety for the use of health officers. The material includes a series of news releases and suggestions for radio talks on important phases of the subject. Coming from an established safety agency this material would be considered routine, but it is exceptional, if not unique, to see it issued by a state department of health—marking as it does an important new development in the public health field. . . . A number of health films of exceptional quality have been issued by the Film Section of the British Information Services, 30 Rockefeller Plaza, New York, N. Y. Included among the subjects are pictures on blood transfusion, health during wartime, plastic surgery, the education of the blind, physical fitness, and diphtheria prevention. Information concerning these pictures is available from the agency at the address given above. . . . Some time ago we learned that Dr. H. E. Kleinschmidt had retired from the staff of the National Tuberculosis Association, and was enjoying a well earned rest. We join with others in hoping that we may soon again see him back in harness and in the front ranks of public health education during the war period. The times are too critical to afford the permanent loss of the unique skills and vast experience which Dr. Kleinschmidt possesses and which are so pertinent to the needs of the moment.

BOOKS AND REPORTS

School Health Problems — *By Dorothy B. Nyswander, Ph.D. New York: The Commonwealth Fund,* 1942. 377 pp. Price, $2.00.

If you were making a list of "must" reading for health officers, school superintendents, and directors of school health service, you would include this book. It presents the outcome and details of a four year intensive study of school health service in New York City dealing with "the effective utilization of organized effort for the better health of school children." The book makes a clear presentation of an important study by an able research staff under the direction of an impressive advisory committee.

The Department of Health and the Board of Education of New York City, as well as the professional people immediately concerned with the study, are to be congratulated upon the frank, scientific, and pioneering methods with which they undertook a study of administrative problems. They have studied the work of the school physician, the teacher, and the nurse. They have investigated such specific problems as follow-up, the testing of visual acuity, the testing for loss of hearing, obtaining dental care, the supervision of cardiac children, the relationship of private physicians to the school health program, and staff education.

In respect to all of these items the various elements of strength and weakness in the New York program have been analyzed. Many constructive procedures and technics in school health administration have been devised, tested, and recommended. The applications of the study are in no way restricted to New York City. The study represents the "laboratory" method applied to school health administration. It deals with problems which are common to most school systems. It shows us how we can evaluate our present school health programs, and gives us many concrete suggestions for improving it.

C. E. TURNER

So Build We—*By Mary S. Gardner. New York: Macmillan,* 1942. 223 pp. Price, $2.25.

So Build We presents in fictional form a series of episodes in the life of a public health nurse executive. Miss Mary Melton is just one of any number of nurses who come face to face with professional and human problems in their everyday work.

The story is alive and appealing. Out of her wide experience, the author gives much sound advice, but she succeeds in conveying this advice through a thoroughly entertaining story. Her extraordinarily fine sense of humor has not only contributed to the quality of this book, but it must also have been a strong factor in her successful career.

The book will be read by nurses who know Miss Gardner, with the feeling that they have had a personal conference with her and have benefited by her human, realistic analysis of fundamental social situations. Those who have not had the privilege of Miss Gardner's personal influence will feel the inspiration of a great leader and have the desire to emulate the thoroughly fine, unselfish devotion to service personified in the characters through whom she expresses her philosophy.

This book is a real contribution to public health nursing literature. It will serve a purpose which no other book on the subject meets. It should be read by student nurses, public health nurses,

physicians, health officers and lay persons interested in community service, and if one has no specialized interest in social programs it is, at any rate, a delightful novel. AMELIA H. GRANT

Chemistry and Physiology of the Vitamins—*By H. R. Rosenberg. New York: Interscience Publishing Company,* 1942. 674 pp. Price, $12.00.

This book with 674 pages and almost 3,000 references is probably the most complete record of the work done in the field of vitamins up to 1942. The subject matter is systematically arranged and it is critically and comprehensively appraised from chemical, physiological, nutritional, and industrial points of view. Methods of preparation of the better known vitamins and the procedures for their determination by chemical and biological means are outlined in a clear, if somewhat abbreviated, form.

The discussion of the essential fatty acids, chlorine and related compounds, and the essential organic sulfur-containing compounds, which the author groups as the " vitagens," is appended to the main section of the book. The brief treatment given to the sulfur-containing amino acids, however, does not add to the excellence of the book. For instance, contrary to facts the author states that " there is actually ample experimental evidence that cysteine is synthesized in the organism from methionine without cleavage of the sulfur linkage." Actually no such direct evidence is admitted by the authors to whom Dr. Rosenberg refers in support of his statement.

In this age of high-pressure publicity, and in view of the somewhat confused state of vitamin affairs, Dr. Rosenberg's book should be heaven sent to teachers of biochemistry, nutritionists, clinicians, and even to vitamin-plagued laymen. It is nether dogmatic nor is it simply a historical survey of the field. The author plainly states, after a critical survey of each topic, what could be considered as known, established, or doubtful, pending further work.

The book will undoubtedly undergo several editions in view of the dynamic state of the field of vitamins. The general plan of the work, however, is such that it will not grow out of date soon. In any case, the relatively low cost of the book is well worth the return.

J. A. STEKOL

The Collected Reprints of The National Foundation for Infantile Paralysis — 1941 — Vol. II — *New York: National Foundation for Infantile Paralysis,* 1942.

This thick volume, containing 57 reprints, is about twice the size of Vol. I, which also represented the published results of investigations which have been supported by grants from the National Foundation for Infantile Paralysis. As such, it becomes in some ways an annual report of the research activities supported by this Foundation; but the book performs other functions too, *viz.:* it is a fairly complete report of the recent (1941) advances in knowledge, arranged chronologically as of the date of publication, in the field of poliomyelitis, and it can be used as a handy reference volume for the bookshelves of anyone engaged in studying or writing on the subject of poliomyelitis, who wants to have certain of his current (1941) reprints under one cover. One can find in these pages most of the important trends regarding laboratory experimentation in this disease; in other words, what North American representatives of the medical profession have been doing about poliomyelitis, and what they have been thinking about, during the past year. This last statement deserves some qualification, for not all the laboratories and not all the groups of workers engaged in investigations on poliomyelitis in this country

and in Canada are supported by this Foundation, although the great majority of them are. If, for instance, one were to add the reprints of Howe and Bodian, of the Johns Hopkins Medical School, and the reprints of Aycock, of the Harvard Medical School, he would have a very representative annual list of the work done in this country.

As to the quality and caliber of the research which is reported in these papers, the reader can judge for himself. One might find half a dozen papers in the series which seem to be only remotely related to the field of poliomyelitis—such as: "The Effect of Quinine on the Metabolism of Fasting Dogs and Patients with Creatinuria," or "A Modification of Mallory's Phosphotungstic Acid-hematoxylin Stain for Formaldehyde-fixed Tissues." These titles may provoke a certain amount of pursing of the lips, but on closer study it will be found that they represent papers which are part of a series of studies which seem to have as their eventual aim something to do with poliomyelitis. On the other hand, there are at least some papers in this series which have a great deal to do with poliomyelitis.

It may be too soon to judge the actual significance of this most recent work, but to the reviewer it would seem that the advances made and reported in 1941, are above those of the average year. There are the excellent studies by Sabin and Ward, in which human autopsy material has been carefully tested for virus from a large series of fatal human cases, indicating as no other studies have ever done how there are *two* major sites of predilection in the human body (in the late stages of the disease) for the virus; namely, the central nervous system, and the lower bowel. There is the first (rather ultracautious) paper tending to voice acceptance of the Kenny treatment in this country—the harbinger of many papers to come. There is a series of papers from the Hooper Foundation on equine encephalomyelitis of the Western type. This disease, like poliomyelitis, is a virus infection of the central nervous system, which is prone to occur in the summer; and the (1941) discoveries of Hammon, Howitt, and others, are included in this volume. Among these papers on encephalitis are reports of finding the virus of this disease in mosquitoes captured in the field, and of evidences of immunity (or at least neutralizing antibodies) in the blood of a great variety of species besides those of the horse and man. Such new facts yield a fund of information about a disease which may in all probability be closely related to poliomyelitis.

There is also an interesting feature with regard to the three papers dealing with the discoveries of the virus of poliomyelitis in flies captured during epidemic times. These three papers appeared within 60 days of one another, representing a rather striking example of a finding which was ready to be made.

The reviewer trusts that he voices the sentiments of many readers by stating that he hopes that these annual volumes may continue to appear. JOHN R. PAUL

The Science of Health — *By Florence L. Meredith, B.Sc., M.D. (2nd ed. of Twelve Hours of Hygiene). Philadelphia: Blakiston,* 1942. 427 pp. Price, $2.50.

This is the second edition of a book previously entitled "Twelve Hours of Hygiene." It is intended for use as a textbook in "one-hour-one-semester" college courses in hygiene. The contents relate primarily to personal hygiene, although certain phases of vital statistics are dealt with in the introduction. An appreciation of the importance of community hygiene is omitted. Scientific explanations are given as far as possible, but much that must be included in a textbook of this character rests on belief. The contents are presented in great

detail, parentheses are used to excess, and awkwardly constructed sentences appear. "If no sterile goods are at hand, a clean handkerchief, or any soft, clean cloth may be ironed until slightly scorched and the scorched side, untouched by the hands or anything else after ironed, may be applied to a wound."

The author takes the view that much may be accomplished in college courses in hygiene through use of a comprehensive text, and she has made a special effort "to give facts usable by the student in making his own decisions in whatever circumstances he finds himself." This is an ambitious undertaking and accounts for the emphasis on details. Those subscribing to a similar teaching philosophy will be interested.

ADOLPH WEINZIRL

W. K. Kellogg Foundation: The First Eleven Years—*Battle Creek, Mich.: Published by Trustees of the W. K. Kellogg Foundation,* 1942. 217 pp.

Readers of annual reports will have a unique experience in this report of the first eleven years of the W. K. Kellogg Foundation, relating the story of the Michigan Community Health Project and other ventures of this Foundation. It is a commendably forthright and readable account of purposes and fiscal affairs. But it is more than that.

An outstanding feature of the volume is the pictorial review of the work done under Foundation auspices in seven rural counties of Michigan. This attempt to portray the underlying principles of the work through pictures and their titles is eminently successful. As illustrations of the way in which a community can be organized for health, these pictures should be of service in showing the student of administrative practice how the educational approach can be used in all sorts of circumstances. It can serve as a reference work in a variety of courses. If a student has any imagination it will be fired.

This report of the W. K. Kellogg Foundation belongs in the top flight group of outstanding foundation documents, along with annual volumes of the Commonwealth Fund and the Rockefeller Foundation, all of which have a public educational value beyond the strict limitations of the reports themselves.

REGINALD M. ATWATER

Personal and Community Health—*By C. E. Turner. (6th ed.) St. Louis: Mosby,* 1942. 652 pp. Price, $3.50.

This text is planned for instruction of groups at the various college levels. The sixth edition contains 652 pages distributed as follows: 533 pages of discussion text arranged in 32 chapters; 78 pages reprinting the 1935 report of the committee of the American Public Health Association on the Control of Communicable Diseases; 9 pages of appendix discussing disinfection and disinfectants; 11 pages of glossary, and 20 pages of index.

It is well written and well printed, and the material is carefully selected and well balanced. The author has presented his discussions clearly and with conservative and considered judgment. The book has already won a deserved place in its field which the new sixth edition will help to maintain.

In a book which has so many fine qualities, one hesitates to comment adversely. There is one respect, however, in which the book is somewhat disappointing, namely the bibliography. It is true that a bibliography should cite the authority for statements when such citation is needed. In a text of this kind, however, it should provide suitable collateral reading wherein the student may find more extensive material than the text provides. Many of the subjects discussed are affected by recent

studies and the students rightfully expect the reference material to be reasonably recent. Of 238 references in the bibliography in which the date of publication was given, only 8 per cent were to articles published within the last five years, 92 per cent being to older literature. Forty-one per cent referred to articles published 6 to 10 years ago, and 42 per cent to those published 11 to 15 years ago. For its intended purposes, this useful book will be even more valuable if in future editions the revision extends to the bibliography.

M. E. BARNES

Tuberculosis Sanatorium Directory—*By National Tuberculosis Association, New York (1790 Broadway),* 1942. 185 pp. Price, $1.50.

The profession is again indebted to the National Tuberculosis Association for a comprehensive directory, the first to appear in four years. During this period the number of beds for tuberculosis in continental United States has increased to 97,726, a gain of 12 per cent, all of which has been among tax supported institutions. Private and semi-private institutions have shown a loss of 5 per cent in beds. In addition to the geographical list there are lists of federal sanatoria and hospitals, a list of mental hospitals making special provision for tuberculosis, and of penal institutions similarly making provisions. Tables show the number of institutions by states, the provision for children by states, the provision for Negroes by states, and the ratio of beds to deaths from tuberculosis by states. Altogether it is a very comprehensive and up-to-date directory.

REGINALD M. ATWATER

Nursing: A Community Health Service—*By Amelia Howe Grant. Philadelphia: Saunders,* 1942. 277 pp. Price, $2.50.

This book aims to meet the needs of "graduate nurses preparing for public health nursing and for students in the basic nursing education programs of study."

The book is developed in three major units. Unit I starts with a brief review of the development and some of the present trends in the field of public health. This is followed by a discussion of public health nursing, its history, the organizations which are concerned with the administration of the service, and the major factors which characterize public health nursing as a family and community nursing service.

Unit II deals with the preparation of the nurse for effective service in this field. The importance of a good basic professional education, the programs of study in universities for the preparation of the graduate nurse in public health nursing, the qualifications for various positions as set forth by the National Organization for Public Health Nursing, and the program of staff education administered by the best public health nursing organizations are discussed carefully in this section.

In Unit III the special phases of public health nursing are reviewed as to their objectives, problems, policies of administration, nursing activities, and responsibilities.

Through *Nursing: A Community Health Service,* Miss Grant has contributed a book which will serve the needs of many groups and individuals. The instructor in the basic school of nursing will find it of value in interpreting the interrelationships between health and illness and the social factors which influence good nursing care. The graduate nurse interested in preparing herself for public health nursing will find a helpful guide in planning her preparation and a concise, yet comprehensive, survey of the major public health nursing services. The practitioner in the field will find the book of value, not only for herself, but as a

reference for lay workers who are interested in knowing more about the history, development and trends of a community service which they have long supported. ELLEN L. BUELL

Health Conditions, New York City, by Health Center Districts and Boroughs, Five Years, from 1936 to 1940—*New York: New York Tuberculosis and Health Association,* 1942. 30 pp.

This handbook of health data presents recent mortality and morbidity reports in a manner to bring out areas of the city where special attention is needed as well as to give an over-all picture of vital statistics. Population changes due to natural increase and migration are analyzed, the marked variations indicating the importance of such basic data for constructive planning. With an average infant mortality rate of 34.9 in 1940, for example, the range among health districts was from 23.3 to 56.3. With an average tuberculosis mortality rate of 49, there was a range among health districts from 15 to 204, the range for boroughs being from 27 to 82. This invaluable source of basic information abounds in detailed statistical tables, is well illustrated with unusually effective charts, and continues a series which has long been valuable for administrative and teaching purposes. IRA V. HISCOCK

Physiological Hygiene—*By C. P. Hickman, Ph.D. New York: Prentice-Hall,* 1942. 482 pp. Price, $3.25.

This book is a frank effort to present modern medicine to college students. It is a miniature of almost the entire medical curriculum. No one thoroughly inured to the conventions and complexities of medicine would have had the hardihood to attempt its conception, development, parturition, and subsequent influence upon young men and women; that is, no one who had been an active participant in the multitude of mistakes and the occasional successes which have attended medical progress.

The vital question which arises when one reads such a text is the accuracy with which the author portrays his offering to the innocents who must make it their gospel. Dr. Hickman is a Doctor of Philosophy, a zoölogist. This gives, perhaps, a certain intrepidity in approaching the entirety of human physiological experience which would be lacking in an ordinary doctor! For example, on page 161, dealing with "Circulatory Diseases," one reads "High blood pressure may run in families, and appear quite early in life." (Reviewer: This is true and very important in the examination of patients.) "This factor, however, appears to be a less common cause of arteriosclerosis than the second named." (Reviewer: *The second named* is, "wear and tear, abuse, the introduction of poisons into the system, and diseases.") "Good blood vessels may very easily acquire arteriosclerosis simply through their misuse." (Reviewer: This is emphatically untrue. No one knows how to misuse blood vessels wilfully.) "Alcoholism and syphilis are definitely known to be direct causes." (Reviewer: This is quite misleading. Alcoholism causes a wide complexity of human ills but not arteriosclerosis. Syphilis is permissible as a causative agent.)

Such criticisms may seem unduly condemnatory. There are many errors in the book, but who could write a text covering all of medicine and physiology without getting into trouble? It has one quality absent from most elementary books. Whether right or wrong, the student reader will want to know more! A textbook for college use that accomplishes such an end may be pardoned for errors incident upon too expansive a plan of presentation.

CECIL K. DRINKER

The Life of Florence Nightingale—*By Sir Edward Cook. New York: Macmillan,* 1942. 510 pp. Price, $4.50.

The new edition of Sir Edward Cook's *The Life of Florence Nightingale* is peculiarly timely in view of the impetus which the present war has given to tropical medicine and to military medicine. Miss Nightingale's name is so identified with the founding of the profession of nursing that few are aware of her fundamental contributions to sanitation, military medicine, tropical medicine, medical statistics and nomenclature, and hospital construction and administration, all based upon her own experience in the military hospitals at Scutari during the Crimean War.

She was directly responsible for several inquiries into the health of the Crimean Army, the army at home, and the army in India, and contributed importantly to the findings and recommendations of the Royal Commissions appointed to deal with these matters.

She demonstrated conclusively that the medical morbidity and mortality rates among British troops at home stations, in the Crimea, and in India, were largely preventable. By the application of simple sanitary measures she greatly reduced the incidence of hospital-transmitted dysentery and typhus. She emphasized repeatedly that the one protection against cholera is sanitation.

She was responsible for the introduction of sanitation into the British Army, for the complete reorganization of the Army Medical Department and the Army Hospital system, for the establishment of the Army Medical School, and she it was who nominated the first faculty. She prepared a classification of disease and medical statistical forms which were made available to the medical department of the United States Army at the request of the Secretary of War, during the Civil War. With ample justification she may be referred to as the mother both of military and of tropical medicine.

This biography is one which should be widely read by physicians, sanitarians, and medical students. It is readable and extensive. It is replete with direct quotations from personal letters, from the various Royal Commissions, and other original sources, which greatly enhance its historical value. A lengthy bibliography and a useful index are included.

THOMAS T. MACKIE

Psychotherapy in Medical Practice—*By Maurice Levine, M.D. New York: Macmillan,* 1942. 320 pp. Price, $3.50.

This book is designed to give the general practitioner a survey of essential points dealing with the relationship of psychiatry and mental hygiene to the field of medicine. Its chapters comprise:

Common Misconceptions, Methods of Psychotherapy, Methods for the General Practitioner, Advanced Methods for the General Practitioner, Methods for the Specialist, Suicide Risks, The Study of Psychogenic Factors, The Choice of Cases, Sex and Marriage, Basic Attitudes Toward Children, The Problems of Parents and Children, and Normality and Maturity.

The writer gives clearly his views and their practical application in a common sense and readable form which should be of value to the audience for which the book is written. One hopes that the "audience" will read this book and not treat it merely as another volume to be added to their medical library.

ESTHER L. RICHARDS

A SELECTED PUBLIC HEALTH BIBLIOGRAPHY WITH ANNOTATIONS

RAYMOND S. PATTERSON, PH.D.

About That Army Jaundice—Most health workers will have to listen to discussions, or their opinions will be asked, about the late and lamented outbreak of jaundice among soldiers and sailors protected with yellow fever vaccine. It is well to be armed with the truth, and here you will find it, in a circular letter issued to all military medical officers. There is editorial comment on the subject in the same issue.

ANON. The Outbreak of Jaundice in the Army. J.A.M.A. 120, 1:51 (Sept. 5), 1942.

Order from Administrative Chaos—War has brought into prominence the lack of a unified system for medical care in Great Britain. The time has come, this committee report insists, to prepare for an organization to deal adequately and efficiently with medical care and health needs of the whole nation. American sanitarians, living in a land where health and medical services are even more Topsy-like in their hit-or-miss growth, will find much food for cogitation in the proposals outlined by the British Society of Medical Officers of Health.

ANON. A (British) National Health Service. Pub. Health. 55, 12:199 (Sept.), 1942.

Raw Milk's Added Attraction—Milk even when produced under acceptable sanitary conditions frequently contains hemolytic streptococci of human origin. Should you ever need it, here is new and convincing evidence with which to confront those raw milk enthusiasts who are aware that tubercle bacilli seldom are found in market milk these days.

BEAHM, E. H. A Bacteriological Study of the Streptococci Isolated from Raw Retail Milk. Am. J. Hyg. 36, 2:147 (Sept.), 1942.

Repairing Air Raid Damage—Have you water troubles on your mind? Has the wartime problem of safeguarding water supply to any part of your population been placed at your doorstep? Then you'll be very greatly concerned with this excellent report from bomb-damaged Britain. Following it are a half dozen worth while papers by American writers upon our own less tragic domestic difficulties.

BERRY, H. Water Supply in War-Time London. J. Am. Waterworks Assn. 34, 9:1298 (Sept.), 1942.

Husbands and Wives Dying from Similar Causes—One would anticipate that spouses of husbands or wives, dying of tuberculosis, influenza, or pneumonia, also would succumb to these communicable diseases at rates greater than the normal expectation. But that the phenomenon should hold true in the case of cancer, would seem hard to explain. Though no explanation is offered, another study (of a nation-wide sampling) confirms the findings of an earlier review of vital statistics of a single county.

CIOCCO, A. Data on the Concurrence of Death from Tuberculosis, Influenza and Pneumonia, Cancer, and Heart Diseases among Husbands and Wives. Pub. Health Rep. 57, 36:1333 (Sept. 4), 1942.

Health Services in Boom Towns—Built, or building, are 435,000 dwelling units to accommodate 1½ million tenants, a half-million of whom will be engaged in war work. The character of the sanitary, medical, nursing, and dental services furnished this group of essential workers will have a direct and decided effect upon the outcome of this war. Some of the problems incident to

supplying these health services are studied.

FREEDMAN, D. K. Health Problems in War Housing. J.A.M.A. 120, 1:9 (Sept. 5), 1942.

Mothers and Babies in the War—Care of expectant mothers among evacuees and wartime nurseries for the children of mothers engaged in war work are subjects that may some day arise to plague American administrators. Here then are three papers upon British experience.

GODBER, G. E., *et al.* Experiences in the Reception of Evacuee Expectant Mothers (and two related papers). Pub. Health. 55, 11:188 (Aug.), 1942.

School Children in War-Time—Hardly a school child but has been affected by the war. Homes have been disrupted, insanitary living conditions have increased, tensions have developed, and the schools find themselves out in front bearing the impact of these conditions. What the school nurse can do about this war-time problem is discussed.

GROUT, R. E. Nurse in War-Time School Health Program. Pub. Health Nurs. 34, 9:477 (Sept.), 1942.

Why Must They Call It "Mess"?—A recent *New Yorker* illustration portrays an inquisitive old lady asking a surprised soldier how many greens he is fed each day. Perhaps you, as an "expert" in all matters of health, are asked about the army and navy rations by worried mothers and dubious fathers of boys in the service. Well, here is the factual material which will enable you to answer them intelligently.

HOWE, P. E. Nutritional Aspects of Feeding an Army (and) BROWN, E. W. Nutritional Aspects of Feeding in the United States Navy. J.A.M.A. 120, 2:93 (Sept. 12), 1942.

Anent Grandma's Chronic Bronchitis—All case finding methods should be applied vigorously to the search for tuberculosis among older people. If you want evidence that there are still many undetected cases of chronically infectious tuberculosis in the higher age groups you'll find it in this paper.

MILLER, R. E., and HENDERSON, B. Undiagnosed Pulmonary Tuberculosis in Elderly Persons. Am. Rev. Tuberc. 46, 2:164 (Aug.), 1942.

In Our War against Influenza—Experimentally, it is provable that both ultra-violet radiation and propylene glycol vapor will prevent certain airborne infections with influenza A virus. Experimentally, it has been found that highly concentrated egg-fluid virus vaccine will give some protection against influenza A infection. Immune serum also protects, under the controlled conditions described. Are we, therefore, ready to meet the next pandemic of influenza? Certainly some weapons are available. Time will determine the completeness of our armamentarium.

STOKES, J., JR., and HENLE, W. Studies on Methods of Prevention of Epidemic Influenza. J.A.M.A. 120, 1:16 (Sept. 5), 1942.

About Blood Banks—If you are making your blood donations every 8 weeks, as you should—assuming that you're healthy and under age 60—you'll be doubly interested in this report upon the conduct of the blood banks. If you haven't yet begun your regular "deposits" in this most important of all banks you'll begin as soon as you read this reassuring paper.

TAYLOR, E. S. Procurement of Blood for the Armed Forces. J.A.M.A. 120, 2:119 (Sept. 12), 1942.

Criminal Negligence Department—Just as a reminder that children still die needlessly of diphtheria, this report is worth noting. Of the diphtheria cases admitted in three years to the Los Angeles County General Hospital, 36 went to their death. What complications they died of and why is the point of this study.

TOGASAKI, Y., *et al.* Treatment, Complica-

tions and Deaths in 753 Cases of Clinical Diphtheria. Am. J. Med. Sci. 204, 2:218 (Aug.), 1942.

Out from the Rut—Effective use of the limited professional services available for school health supervision is a subject which should be of interest to health workers even in communities where the problem is one solely for the educational authorities. This story of the Astoria (N. Y.), School Health Study drives home the point that precious professional services must not be wasted upon outmoded practices.

WHEATLEY, G. M. Health for Tomorrow's School Child. Pub. Health Nurs. 34, 9:483 (Sept.), 1942.

An Old Problem in a New Setting—Some of the inherent difficulties in following up persons rejected by draft boards and the army doctors because of tuberculous lesions are enumerated. It is pointed out that this is potentially the one greatest case finding opportunity in the history of the disease.

WILLIAMS, C. J. The Tuberculous Registrant. Am. J. Nurs. 42, 9:989 (Sept.), 1942.

Alteram Partem, Audire—Although there is a direct and statistically significant increase in tuberculosis among the husbands or wives and brothers or sisters, of persons dying of tuberculosis the negative findings must not be overlooked: 83 per cent of the spouses and 86 per cent of the siblings did not die of tuberculosis though exposed for many years. Quite evidently there is a constitutional element as well as the factors of specific infection and social environment which influences the spread of tuberculosis.

WOLFF, G., and CIOCCO, A. Infection, Social Environment, and Heredity in Tuberculosis. Am. Rev. Tuberc. 46, 2:142 (Aug.), 1942.

BOOKS RECEIVED

PUBLIC HEALTH STATISTICS. By Marguerite F. Hall. New York: Hoeber, 1942. 408 pp. Price, $5.50.

ELEMENTS OF HEALTHFUL LIVING. By Harold S. Diehl. New York: McGraw-Hill, 1942. 322 pp. Price, $1.75.

INTRODUCTION TO PARASITOLOGY. By A. S. Pearse. Springfield: Thomas, 1942. 357 pp. Price, $3.75.

BLOOD SUBSTITUTES AND BLOOD TRANSFUSION. Edited by Stuart Mudd and William Thalhimer. Springfield: Thomas, 1942. 407 pp. Price, $5.00.

MEDICAL PARASITOLOGY. By James T. Culbertson. New York: Columbia, 1942. 285 pp. Price, $4.25.

AFTEREFFECTS OF BRAIN INJURIES IN THE WAR. By Kurt Goldstein. New York: Grune & Stratton, 1942. 244 pp. Price, $4.

EAT WHAT YOU WANT! A Sensible Guide to Good Health through Good Eating. By W. W. Bauer and Florence Marvyne Bauer. New York: Greenberg, 1942. 263 pp. Price, $2.00.

CONTRACEPTION AND FERTILITY IN THE SOUTHERN APPALACHIANS. By Gilbert Wheeler Beebe. Baltimore: Williams & Wilkins, 1942. 274 pp. Price, $2.50.

GROUP DIFFERENCES IN URBAN FERTILITY. By Clyde V. Kiser. Baltimore: Williams & Wilkins, 1942. 284 pp. Price, $2.50.

THE LIVES AND LOVES OF HUBER THE TUBER. By Harry A. Wilmer. New York: National Tuberculosis Association, 1942. 83 pp. Price, $1.00.

THE AMATEUR SCIENTIST. By W. Stephen Thomas. New York: Norton, 1942. 291 pp. Price, $3.00.

MINERALS IN NUTRITION. By Z. T. Wirtschafter. New York: Reinhold, 1942. 175 pp. Price, $1.75.

FORMULARY FOR USE IN MILITARY HOSPITALS. London: His Majesty's Stationery Office, 1942. 37 pp. Price, $.30.

HEALTH FACTS FOR COLLEGE STUDENTS. By Maude Lee Etheredge. 4th ed. Philadelphia: Saunders, 1942. 379 pp. Price, $2.25.

SUPPLEMENT "D" TO OHIO RIVER POLLUTION SURVEY REPORT OF THE U. S. PUBLIC HEALTH SERVICE. Cincinnati: Federal Security Agency, 1942. Supply limited.

NASSAU HEALTH IN 1941. Third Annual Report of the Nassau County Department of Health for the Year Ending December 31, 1942. 1942.

FOOD CONSUMPTION AND DIETARY SURVEYS IN THE AMERICAS. Results—Methods. By Robert Morse Woodbury. Montreal: International Labour Office, 1942. 64 pp. Price, $.35.

APPLICANTS FOR MEMBERSHIP

The following individuals have applied for membership in the Association. They have requested affiliation with the sections indicated.

Health Officers Section

David R. Barglow, M.D., Westcliffe, Colo., Public Health Officer

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Unaffiliated

Charles B. Frasher, M.A., Room 207, Blackstone Bldg., Harrisburg, Pa., Merit System Supervisor, State Dept. of Health

DECEASED MEMBERS

N. M. Burnett, M.D., Lamar, Colo., elected member 1919—Unaffiliated

Dorothea Campbell, Charleston, W. Va., Elected Member 1929, Public Health Education Section

EMPLOYMENT SERVICE

The Association Employment Service seeks to bring to the attention of appointing officers the names of qualified public health personnel and to act as a clearinghouse on employment. This is a service of the Association conducted without expense to the employer or employee.

From the registry of persons available, selected announcements are published from time to time. Appointing officers may obtain lists of all registrants on request.

Address all correspondence to the Employment Service, American Public Health Association, 1790 Broadway, New York, N. Y.

U. S. CIVIL SERVICE COMMISSION

The Commission has announced again its need for public health nursing consultants in war work. The new announcement now provides for 5 grades and for appointments in the Children's Bureau, Department of Labor, U. S. Public Health Service, and Federal Security Agency. Salaries range from $2,600 to $5,600 a year. No age limits have been set. Positions exist both in the United States and foreign countries. War service appointments will be made to extend generally for the duration of the war and no longer than 6 months afterward. Duties are to carry out, in accordance with the rank of the position, nursing or nursing education programs; and to act in advisory capacity to Federal agencies, or to State, County, and municipal organizations.

There will be no written test, qualifications being judged solely from review of experience, education, and training of applicants. Persons applying must have completed a 4 year course in a recognized college and 1 year's special program of study in public health nursing approved by the National Organization for Public Health Nursing; must also have graduated from an accredited school of nursing affiliated with a hospital having a daily average of 100 or more bed patients; be registered nurses in a state or territory of the United States or the District of Columbia, and have had appropriate general public health nursing supervisory experience. Additional credit given for completion of approved college course in statistical analysis, public health nursing, supervision, social hygiene, tuberculosis control and maternity, pediatric or orthopedic nursing; also for certain appropriate experience as instructor, consultant, or investigator.

For positions in Children's Bureau additional progressive experience in specialized fields of maternal or child health is required for the top grade and may be substituted for part of the general experience prescribed for the other grades.

Applications must be filed with the U. S. Civil Service Commission, Washington, D. C., and will be accepted until the needs of the service have been met. Forms may be obtained direct from the Commission or at any first or second class post office.

Merit System Council, Oregon State Board of Health and Crippled Children's Division, has announced merit examinations in practically all professional public health fields, including Health Officers, Nurses, Sanitary Engineers, Laboratory Workers, Vital Statisticians, Consultants in the fields of Health Education, Hearing and Vision, Nutrition, Oral Health and Physiotherapy. Two clerical positions, Fiscal Worker and Administrative Clerk are included in this list as is also the position of Merit System Personnel Technician.

Interested persons may get full particulars regarding the positions and examinations by writing H. J. Sears, Merit System Supervisor, P. O. Box 88, Portland, Ore.

The Indiana State Personnel Division, 141 South Meridian Street, Indianapolis, announces that applications may be filed at any time until further notice for the following positions:

Orthopedic Nursing Consultant I (women only)..	$150–200 mo.
Physician I (General)	165–250 mo.
Physician II (General)	250–325 mo.
Physician II (Tuberculosis)	250–325 mo.
Physician I (Psychiatric)..	185–265 mo.
Physician II (Psychiatric).	250–325 mo.
Local Public Health Director	300–360 mo.

POSITIONS AVAILABLE

Western state department of health will consider applications from physicians to fill four existing vacancies among county health officers, one vacancy in venereal disease control and positions as laboratory technicians. Write **Box S, Employment Service, A.P.H.A.**

Physician with either public health training or experience in local health de-

partment administration to serve as health director in a county or district health department in midwestern state. Salaries vary from $4,000 to 4,500 with $500 to $600 travel, flat rate. These are well established health departments. Write **Box T**, Employment Service, A.P.H.A.

County Public Health Nurses for New Mexico. Must have 4 months' postgraduate instruction under one of the recognized public health nursing courses and 1 year's experience. Must drive and have a car. Address inquiry to State Health Department, Santa Fe, N. M.

Wanted: Supervisor of generalized public health nursing staff of 6 to 8 nurses. Beginning salary $175 per month, with opportunity for increase to $220 and travel expenses. Must be high school graduate, graduate of hospital of 100 beds, and must have at least 1 year's postgraduate study in public health nursing at a recognized institution, and 2 years' experience in general public health nursing under qualified supervision. Apply **Box L**, Employment Service, A.P.H.A.

Southern state department of health seeks several obstetric and pediatric consultants, requiring a minimum of a year's residency in a specialty, immunity to draft, and preferably training in public health. Men and women are eligible. Salary $300 per month plus travel. Apply **Box C**, Employment Service, A.P.H.A.

Bacteriologist with Ph.D. or equivalent and teaching experience wanted in western state university. Must be immune to military service call. Salary about $2,500. Write **Box A**, Employment Service, A.P.H.A.

Two physicians, immediate appointment, full-time venereal disease clinician conduct several small clinics rotating schedule. Experience preferred. Salary $3,000 to $3,600 plus actual expense not to exceed $1,200. Write State Health Department, Santa Fe, New Mexico.

Wanted: Chemical or Ceramic Engineer or Geologist for Occupational Disease work, Division of Industrial Hygiene, State Board of Health, Raleigh, N. C.

THE AMERICAN RED CROSS NEEDS EDUCATORS

The American Red Cross will employ hundreds of social welfare workers and educators before January, 1943. These new employees will perform Red Cross services to the military units both in this country and with the task forces abroad.

Red Cross workers give counsel to the men in the armed forces about their personal and family problems, plan and organize recreational activities. They interpret Red Cross service to the military authorities. They act, to quote U. S. Army regulations, "in matters of voluntary relief and in accord with the military and naval authorities as a medium of communication between the people of the United States of America and their Army and Navy."

New professional employees needed include:

Men—Field directors, to serve at the military and naval centers here and abroad to counsel and advise men in the service regarding personal and family problems.

Men and Women—Club directors, program directors, staff assistants to operate clubs in leave areas overseas, some who qualify through executive or administrative experience, others by experience comparable to the operation of a large community center, and still others who qualify through recreation training and experience.

Men—Assistant field directors for recreation, to serve with the task forces overseas, qualified to plan, organize, and promote recreational activities such as sports, games, social recreation, entertainments, arts and crafts, music, dramatics, and game rooms.

Women—Medical and psychiatric social workers, case workers and recreation specialists in military and naval hospitals both here and abroad.

Men and women assigned to the service in this country will receive from $135 to $200 per month; those stationed outside the United States receive from $150 to $275 plus an additional $50 per month maintenance allowance in military centers and full maintenance in club work. Uniforms are provided. Those assigned abroad are also provided with certain insurance protection.

Those interested in receiving further information or in making application for a position in the American Red Cross Services to the Armed Forces program should communicate with: Personnel Service, National Headquarters, American Red Cross, Washington, D. C.

Those interested in a position within continental United States only should apply to the nearest Red Cross area office. They are as follows:

North Atlantic Area, 300 Fourth Avenue, New York, N. Y.
Eastern Area, 615 N. St. Asaph Street, Alexandria, Va.
Midwestern Area, 1709 Washington Avenue, St. Louis, Mo.
Pacific Area, Civic Auditorium, San Francisco, Calif.

THE AMERICAN NATIONAL RED CROSS
WASHINGTON, D. C.

MEDICAL OFFICERS NEEDED—TENNESSEE VALLEY AUTHORITY

The Tennessee Valley Authority is in urgent need of medical officers who are not eligible for military service and who are willing to accept assignments to war industrial activities (construction, manufacture of war chemicals and manufacture of hydroelectric power) as their participation in the all out war effort. Responsibilities include physical examinations, industrial hygiene, care of injuries, medical care to families in remote construction areas and general public health responsibilities in construction camps and villages.

Salary ranges from $3,200 to $4,200 per annum with opportunity for promotion.

For further information write to Dr. E. L. Bishop, Director of Health, Tennessee Valley Authority, Chattanooga, Tennessee, or to the Personnel Department, Tennessee Valley Authority, Knoxville, Tenn.

Physician, man or woman, as director of division of maternal, child and school hygiene in southern city department of health. Woman physician with pediatric training preferred, public health experience not essential. To operate prenatal, infant and preschool clinics and promote school health program. Salary commensurate with ability and qualifications of applicant. Apply **Box J**, Employment Service, A.P.H.A.

The New Mexico State Department of Public Health will consider applications for the position of obstetrical consultant, Maternal and Child Health Division. Address inquiries to the State Department of Public Health, Santa Fe, N. M.

Public Health Engineer and director of Division of Sanitation of a city and county health unit; population 145,000 in the midwest. Salary, $3,180 and travel allowance. **Box E**, Employment Service, A.P.H.A.

The Alaska Merit System announces the following positions:

Position	*Salary per month*
Assistant Commissioner of Health	$500 to $625
Maternal and Child Health Director	380 to 455
Director, Division of Public Health Engineering	290 to 335
Sanitarian, Senior Grade	215 to 245
Sanitarian	185 to 215
Bacteriologist, Senior Grade	290 to 335
Bacteriologist, Junior Grade	215 to 245
Laboratory Technician	185 to 215
Public Health Nurse	185 to 215

Appointments are being made on a provisional basis with examinations following when the staff is more adequately completed.

Apply to W. H. Matthews, Jr., Alaska Merit System, Box 201, Juneau, Alaska.

POSITIONS WANTED

ADMINISTRATIVE

Teaching or administrative position desired by physician, aged 48. Experienced teacher in preventive medicine and public health, now employed at prominent medical school; 20 years' experience in municipal health administration and epidemiology. **A-491**

Physician with 25 years' full-time experience in public health administration is available for immediate appointment. Moderately hard of hearing; otherwise fully able. Salary $4,500 or better. **A-497**

Physician, M.D., C.P.H., aged 47, seeks position in administrative work. Experienced in venereal disease control and industrial medicine. **A-485**

Physician, aged 47, M.D., Creighton

University, M.S.P.H., Michigan, experienced in school health and as director of county health unit, seeks position as administrator in state or local health department. **A-498**

Physician with 8 years' experience desires public health position preferably in urban locality. Age 45. Available now. **A-502**

WOMEN PHYSICIANS TRAINED IN PUBLIC HEALTH

Woman, aged 34, M.D., University of Basle, Switzerland, M.S.P.H., DeLamar Institute, Columbia University. U. S. citizen. Excellent references. Especially interested in industrial hygiene. **A-493**

Woman, aged 41, M.D., Columbia University, M.S.P.H., DeLamar Institute, experienced in epidemiology and research, seeks position offering administration experience. **A-494**

Woman physician, M.D., Rush, M.P.H., Michigan, 13 years' experience in school medical service and administrative county health unit, seeks administrative position. New York area preferred. **A-500**

Woman physician, aged 29, M.D. Women's Medical, M.P.H. Johns Hopkins. Specially interested in industrial medicine and public health administration. Has had residency in tuberculosis. **A-501**

HEALTH EDUCATION

Woman with master's degree in health education, 12 years' successful experience in public school and college teaching, administration and research. Will consider position in normal school, public schools, or in official or nonofficial health agencies. Prefers South or East. Available at once. **H-501**

INDUSTRIAL HYGIENE

Industrial hygiene chemist. Experienced in sampling, analysis of toxic industrial gases and fumes; petrographic dust analysis; dust counting; general toxicological analysis; chemical microscopy; also experienced in making industrial hygiene surveys, with knowledge of German, French, and Spanish. Six years' experience. Desires position. **I-457**

LABORATORY

Man, aged 28, A.B., M.S. in animal parasitology, Ph.D. in human parasitology and tropical diseases. Two years' experience in charge of parasitological diagnosis and research in state laboratory. Research publications; teaching experience. Desires teaching position in university with opportunity to do research. **L-463**

Physician, B.S., M.D., 17 years' experience as director of public health laboratory, desires similar position or as administrator of division of an aggressive state health department. Experience covers investigational and control activities on water, several types of foods as chemist, and bacteriologist and serologist in syphilis and enteric diseases. **L-465**

MISCELLANEOUS

Public Health Nurse with M.A. degree wishes position in health supervision and teaching in college or public school. West preferred. **M-452**

NEWS FROM THE FIELD

FOR OUR CHILDREN IN WARTIME

A Program of State Action

Adopted August 28, 1942, by the Children's Bureau Commission on Children in Wartime in consultation with the Office of Defense Health and Welfare Services and the Office of Civilian Defense

CHILDREN are the strength of the nation. In war as in peace, their welfare is of primary importance to the nation, to states, to local communities, and, above all, to parents.

Certain nation-wide needs must be met through nation-wide action, with the participation of federal, state, and local governments, and citizens' groups. Upon the states rests the chief responsibility for the provision of legal safeguards and administrative measures necessary to assure security and opportunity for every child.

The Children's Charter in Wartime calls upon all citizens as a wartime responsibility to guard children from injury in danger zones; to protect children from neglect, exploitation, and undue strain in defense areas; to strengthen the home life of children whose parents are mobilized for war or war production; and to conserve, equip, and free children to take their part in democracy.

The same emergency needs do not exist in every state or in all communities of the same state. One state or community must give first attention to protection of children in danger zones and advance planning for evacuation; in another, day care of children of mothers employed in war industries may be the most urgent immediate need; and in another, the welfare of children in "boom" towns and trailer camps. The specific aspects of child life most in need of attention under wartime conditions must be determined state by state and community by community.

Certain problems, however, are so closely related to the war situation that nation-wide measures are required, developed through state and local action, with federal participation when necessary.

A. *The Program*

In every state a program of action FOR OUR CHILDREN IN WARTIME should include measures which will assure:

1. Health service and medical and dental care for mothers and for children, including boys and girls in the age groups that may soon be called upon for war production or military service, with special provision as needed for wives and children of service men and war workers. These services should be so organized as to overcome or compensate for overcrowding of existing health facilities, shortages in medical and nursing personnel, and difficulties in transportation.
2. Adequate nourishing food for all children during the period of rising costs of living and rationing of food supplies, through such means as nutrition education, school lunches, and low-cost milk.
3. Protection of children in danger zones, including provision for their safety in the event of enemy attack; measures for emergency care following attack; and preparation through officially established evacuation authorities for evacuation and reception care, if necessary.

4. Day care for children of mothers whose employment is essential to the war program.
5. Special assistance programs as required to meet wartime needs of children in their own homes, and adjustment of public-assistance measures to meet problems due to rising cost of living, migration, and separation of families.
6. Community child welfare and other social services that will conserve home life for children and safeguard them from neglect and juvenile delinquency resulting from wartime conditions, and provide appropriate care for unmarried mothers and their children.
7. Adequate provision for the care of children who because of war conditions must be separated from their families.
8. Opportunities for recreation and other experiences in home and community life that will help children overcome wartime strain and insecurity; and provision for mental health services to help children and parents make the adjustments required by war conditions.
9. Full school attendance and school opportunity for every child, with particular emphasis on overcoming or compensating for shortages of schools and teachers where they exist, and with adjustments as necessary to conform with child labor and youth employment policies.
10. Meeting the man power needs of the nation for participation of young people in war production, having due regard for conservation of health and educational opportunity for youth and in accordance with the following principles:
    (1) No child under 14 years of age a part of the hired labor force
    (2) None under 16 employed in manufacturing or mining occupations
    (3) None between 14 and 16 employed in other occupations that involve release from school or readjustment of school programs unless it has been determined that labor shortages cannot be met otherwise
    (4) Guidance of youth 16 to 18 years of age whose work is essential to the war effort into occupations suited to their age and capacity, in which they can make the greatest contribution with the least hazard to their own health and safety

B. *Procedure for Carrying Out the Program*

The following steps will be necessary to put into operation a program of action FOR OUR CHILDREN IN WARTIME:

I. *Organization—*

1. Fixing responsibility for planning, coordination, and leadership on some representative state group. Wherever practicable this group should be a committee or subcommittee of the council of defense, whose work should be properly related to the work of other defense council committees including those dealing with emergency and protective measures.
2. Inclusion in the state committee of representatives of state departments of welfare, health, education, and labor, and of state-wide organizations concerned with children; especially, representatives of active State White House Conference committees and other groups having a similarly broad purpose, with provision for full coöperation with such groups.
3. Organization of a representative local committee, when practicable as part of the local defense council.

II. *Putting the program into action*

1. Review of wartime needs of children and existing resources for meeting those needs, with special consideration of the 10 points listed under section *A*.
2. Development of state and community services adequate to meet the wartime needs of children with such financial assistance from the state or the federal government as may be required. The following measures will be necessary to achieve this objective:
    (a) State legislation as needed to provide an adequate legal basis for wartime services for children.
    (b) Review of adequacy of funds available from federal, state, and local sources, public and private, and securing of such additional funds as may be required.
    (c) Review of administrative and personnel problems of state and local agencies responsible for services to children and families, and support of plans for strengthening the work of these agencies and developing closer coördination of agency programs.
    (d) Assistance in developing and carrying out plans for recruitment and training of additional personnel, both professional and volunteer, as required.

"PROFESSIONAL NURSING AND AUXILIARY SERVICES"

A new pamphlet with the above title covering preparation for all types of nursing services in concise form and prepared by the Nursing Information Bureau of the American Nurses' Association, has just been released.

Emphasis is placed on preparation for professional nursing and on the opportunities created by the war and its probable aftermath. Tables showing the wide variety of positions open to nurses as they advance in preparation and experience, and indicating the salaries which the various positions may command is a unique feature of the publication. A section on auxiliary nursing covers positions outside of professional nursing for persons working in civilian hospitals, clinics, dispensaries, or elsewhere as volunteer nurses' aides.

The pamphlet will be of interest to college and high school counsellors in helping young people to plan their future and to young nurses on the threshhold of their careers. It may be obtained from the Nursing Information Bureau, American Nurses' Association, 1790 Broadway, New York, N. Y., at 25c.

INSTITUTE ON PERSONALITY DEVELOPMENT

The Progressive Education Association, New York, N. Y., has announced the academic schedule for the year 1942–1943 of the Institute on Personality Development. According to the Association, the purpose of the Institute is to provide advanced training in guidance and mental hygiene for workers in education and the related fields of pediatrics, social work, and school health. An informal forum is provided where professional workers from various disciplines can exchange their experiences and advance their understanding and appreciation of those distinct specialties which lie outside their respective fields but which deal with aspects of human growth and development. The group is limited to men and women who have had successful experience as teachers, school administrators, school psychologists, school health workers, pediatricians, psychiatrists, child guidance workers, or social workers. A bulletin of information may be obtained by addressing the Executive Secretary, 17 East 96th Street, New York, N. Y.

Among the Board of Trustees of the Institute are included Caroline B. Zachry, Ph.D., Leona Baumgartner, M.D., Frank J. O'Brien, M.D.; among the Leaders and Consultants, Benjamin Spock, M.D., Milton J. E. Senn, M.D., Mary Shattuck Fisher, Ph.D., Martha Eliot, M.D., Helen Merrell Lynd, Margaret Mahler, M.D., and George M. Wheatley, M.D.

PAN AMERICAN SANITARY CONFERENCE IN RIO

The Eleventh Pan American Sanitary Conference was held during September in Rio De Janiero, with representation from most of the American republics. Hugh S. Cumming, M.D., was reëlected Director of the Pan American Sanitary Bureau.

Among those in attendance from the United States were Thomas Parran, M.D., Surgeon General, U. S. Public Health Service, Washington, and Abel Wolman, Dr.Eng., Professor of Sanitary Engineering at Johns Hopkins School of Hygiene and Public Health, Baltimore.

OIL SHORTAGES COMPLICATE CUBA'S SANITATION

The press on September 18 carried dispatches from Havana indicating that the shortage of oil has prevented the burning of large quantities of garbage with resulting increase in the number of flies. It was said that lack of petroleum also has halted customary measures against mosquitoes, and that the collection of garbage was difficult be-

cause of the lack of tires and gasoline.

It was said that an infantile paralysis epidemic now current was suspected of having relationship with these sanitary nuisances.

STANDARD OF ALLOWABLE CONCENTRATIONS OF MANGANESE

The American Standards Association, New York, N. Y., has announced the completion and approval of the American War Standard of Allowable Concentration of Manganese—Z37. 6–1942. This standard has been set up through the activities of A.S.A. Committee on Toxic Dusts and Gases. A standard for cadmium, Z37. 5–1941, was the first in the series and the report on manganese is the second. The standard was prepared by the staff of the U. S. Public Health Service and was reviewed by the A.S.A. committee. It will be effective during the war period, after which it will be reviewed by the A.S.A. committee and either withdrawn or revised if necessary and reapproved. The representative of the American Public Health Association on the responsible committee has been J. J. Bloomfield, Chief of the States Relations Section, National Institute of Health. William P. Yant has been chairman of the committee.

DR. WALTER BROWN APPOINTED PROFESSOR AT BERKELEY

The appointment of Dr. Walter H. Brown of Stanford University as Chairman of the Department of Hygiene at the University of California, Berkeley, has been announced. According to *Western Public Health*, Dr. Brown agreed to change his affiliation from Stanford, where he has taught for the past 15 years, to the University of California with the express understanding that his services were needed to prepare the way for a school of public health.

Three months ago the Northern California Public Health Association appointed a committee for the establishment of a school of public health on the West Coast. Members of the committee included Fred T. Foard, M.D., Bertram P. Brown, M.D., Charles Edward Smith, M.D., Karl F. Meyer, Ph.D., W. Ford Higby, Lawrence Arnstein and W. P. Shepard, M.D., Chairman. The committee has made definite proposals to the University of California and has prepared a tentative budget. Interest has been shown by the authorities at the University of California, and the committee is preparing to sponsor a bill in the 1943 California Legislature to provide a special appropriation for the purpose.

Dr. Brown is Past-President of the A.P.H.A. and a long-time member of the Executive Board. He was former Health Officer of Marion County, Ore., and of Mansfield, Ohio. His leadership in the western states has done much to advance understanding between the professions of education and medicine.

OCCUPATIONAL DISEASE REPORTS

The U. S. Public Health Service plans to secure state reports on occupational diseases to be published in *Public Health Reports*, according to the Division of Industrial Hygiene, National Institute of Health.

INSTITUTES ON PROTECTION OF WAR WORKERS

The California Medical Association Committees on Postgraduate Activities and on Industrial Practice, the Western Association of Industrial Physicians and Surgeons, and the California State Department of Public Health arranged a series of one day institutes on health protection of war workers held August 18–28 in 7 strategic centers in the state. The institutes were planned to interest physicians, nurses, safety engineers, and plant managers called upon to supervise health and give medical care to workers in war industries.

INDUSTRIAL HYGIENE FOUNDATION

The Industrial Hygiene Foundation, Pittsburgh, Pa., a research and service institution aiming to protect the health of workers in industry, announces the 7th annual meeting of the Foundation at the Mellon Institute in Pittsburgh November 10 and 11. The program will be focused on reducing the loss of man power through the 2½ million days which war workers are losing weekly from illness and non-industrial injuries. This has a direct bearing on the current war production schedule which calls for a plane every 8 minutes and a tank every 12 minutes.

THE CHARLES V. CHAPIN ANNUAL ORATION

According to the *Journal of the A.M.A.*, the Rhode Island Medical Society has established the annual Charles Value Chapin Oration in honor of the late Dr. Chapin who, throughout his entire career, was active in the field of public health in Rhode Island and Massachusetts. Dr. Timothy Leary, Professor of Pathology Emeritus of Tufts College Medical School, Boston, recently gave the first lecture. Dr. Chapin, who died in 1941, was Superintendent of Health in Providence from 1884 to 1932 and lecturer at the Harvard School of Public Health for many years. He was President of the American Public Health Association in 1927.

THE ERADICATION OF BRUCELLOSIS

The U. S. Department of Agriculture announced on July 6 that North Carolina is the first state to be officially designated as a modified accredited Bang's disease free area. According to the announcement, North Carolina was also the first state of which all counties were declared free of bovine tuberculosis in 1928.

The modified accredited area now includes a total of 550 counties in 24 states. The eradication work is being conducted in about 160 additional counties. A county may be officially designated as a modified accredited area when a test for Bang's disease has been applied to all cattle 6 months of age or older, except steers, and the percentage of reactors to the last test does not exceed one per cent of the cattle and the infected herds do not exceed five per cent of the total number.

THE LESLIE DANA MEDAL AWARDED TO LEWIS H. CARRIS

The St. Louis, Missouri, Society for the Blind, in coöperation with the National Society for the Prevention of Blindness and the Association for Research in Ophthalmology, arranged a dinner on October 10 in St. Louis in honor of Lewis H. Carris, Director Emeritus of the National Society for the Prevention of Blindness, New York, on the occasion of the award to Mr. Carris of the Leslie Dana Medal for the Prevention of Blindness.

NURSING IN INDUSTRY

The University of California held a course for nurses in industry July 20 to August 8, conducted by Olive M. Whitlock, R.N., Associate Public Health Nursing Consultant, U. S. Public Health Service. The course was supplemented by demonstrations by industrial nurses and field observation visits.

KANSAS PUBLIC HEALTH ASSOCIATION MEETING

The Kansas Public Health Association met September 4, in Emporia, the last of the organization's semi-annual sessions, as it was voted to hold the meetings annually hereafter, in the spring. Newly elected officers include:

President—S. N. Mallison, M.D., El Dorado
Vice-President—R. P. Cherry, Wichita
Secretary—Henry H. Asher, M.D., Topeka
Secretary and Executive Officer—F. C. Beelman, M.D., Topeka

PUBLIC HEALTH SERVICE CREATES TUBERCULOSIS SECTION

The Surgeon General of the Public Health Service has announced the establishment in the States Relations Division of a Tuberculosis Control Section to cooperate with the Division of Industrial Hygiene, National Institute of Health, Bethesda, Md. Included in the responsibilities of the new section are the examination of U. S. Coast Guard recruits, workers in war industries, persons in war industry communities, and, in cooperation with Selective Service, the Navy and state health departments, to elaborate a system of reporting cases of young men rejected for tuberculosis. A consultation service is available to state health departments in the development of control programs and units for miniature x-rays are being lent to the bureaus of industrial hygiene and tuberculosis control in case finding.

NEW YORK CITY OFFERS REFRESHER COURSES IN VENEREAL DISEASES

The New York City Department of Health has announced a series of clinical and refresher courses on syphilis and other venereal diseases which opened on September 23. The department has announced that the purpose of this program is to keep physicians in practice abreast of approved diagnostic methods in syphilis, gonorrhea and other venereal diseases.

"PUBLIC HEALTH; RETROSPECT AND PROSPECT"

The New York Academy of Medicine has announced the fall and winter series of a section on historical and cultural medicine to begin on November 4. This meeting will be sponsored jointly by the historical section and by the Committee on Public Health Relations. The first session will include the story of the public and voluntary health agencies in a review of public health in New York City.

KENTUCKY CHANGES HEALTH PERSONNEL

Announcement is made of the appointment of Jacob Leland Tanner, M.D., of Henderson as Health Officer of Washington County.

Paul D. Moore, M.D., Albany, now transferred to Casey County, has been succeeded by William R. Kelsay, M.D., of Monticello as Health Officer for Clinton and Cumberland Counties and Wayne County. Dr. Moore succeeds James T. Duncan, M.D., formerly of Columbia, who has gone to Charleston, W. Va.

Donald B. Thurber, M.D., of Carlisle has been appointed Director of the Tri County Health District, consisting of Trimble, Carroll and Gallatin Counties.

KANSAS CREATES DIVISION OF INDUSTRIAL HYGIENE

The Kansas State Board of Health recently announced the creation of a division of industrial hygiene to provide consultant service for industries of the state. This will supersede the Industrial Hygiene Service which for the last five years has been a part of the sanitary engineering division of the State Board of Health. Quarters will be provided for the new unit in Topeka, and will be under the direction of Robert M. Heilman, M.D., of the staff of the U. S. Public Health Service.

GRADUATE COURSE IN INDUSTRIAL HEALTH

The Department of Preventive Medicine and Community Health of Long Island College of Medicine at Brooklyn, N. Y., has announced a graduate course in industrial health consisting of lectures and clinics from November 2 to November 13, and industrial internships, November 16 to December 12.

A systematic review of the field of industrial health will be presented by visiting lecturers and the staff of the College of Medicine. Additional in-

formation and a prospectus may be obtained from the College of Medicine, 350 Henry St., Brooklyn, N. Y.

PERSONALS

Central States

FRANK A. BEARDSLEY, M.D., of Frankfort, Ind., has been appointed Health Officer of Clinton County to succeed BRUCE A. WORK, of Frankfort, who is in the Army.

FLOYD L. BURRIS, M.D., is the new Health Officer of Michigan City, Ind., succeeding NORMAN R. CARLSON, M.D., who is with the U. S. Army Air Corps at Hill Field, Ogden, Utah.

ROY H. ELLIOTT, M.D., of Cornersville, Ind., has been appointed Health Officer of Fayette County, to succeed the late JOHN S. LEFFEL, M.D., of Cornersville.

SARKIS H. KASH, M.D., was named Health Commissioner of the Cudahy, Wis., Board of Health at the April 27th meeting of the Board.

ARTHUR LEITER, M.D., of Columbia City, Ind., has been named Health Officer of Whitley County, to succeed OTTO F. C. LEHMBERG, M.D., of Columbia City, who is now a Captain in the U. S. Army.

HOWARD B. METTEL, M.D.,* of the Indiana State Health Department, where he served as Director of the Maternal and Child Health Program and as Director of the Crippled Children's Program of Indiana, has been appointed as Director of Medical and Health Service of the Midwestern Area, American Red Cross, with headquarters in St. Louis, Mo.

HERMAN G. MORGAN, M.D., on August 12 marked the completion of thirty years as administrative head of the Indianapolis Board of Health. He was guest of honor at a dinner on this occasion.

RUSSELL PERRY REYNOLDS, M.D., has been appointed Secretary of the Garrett Board of Health, succeeding ROBERT A. NASON, M.D., who has entered government service.

JEANNETTE ROSENSTOCK, R.N.,† has resigned as Nursing Supervisor for Health District No. 51, Utah State Department of Health, Richfield, Utah, to assume the position of Nursing Supervisor for the newly unified Topeka City-Shawnee County Health Services with headquarters at Topeka, Kans.

CECIL A. Z. SHARP, M.D.,† State District Health Officer, Highland, Ill., has been placed in charge of a new health unit in Will County.

HARRY WAIN, M.D., M.S.P.H.,† of Sidney, Ohio, has resigned as Health Commissioner of Shelby County and Sidney, to become Health Commissioner of Troy and Miami County, Ohio.

Eastern States

THOMAS D. DUBLIN, M.D., DR.P.H.,† has resigned as Epidemiologist in the Division of Communicable Diseases, New York State Department of Health, Albany, to accept an appointment as head of the Department of Preventive Medicine and Community Health at the Long Island College of Medicine, Brooklyn, N. Y. Dr. Dublin was graduated in medicine from Harvard and in public health from Johns Hopkins School of Hygiene. He has served on the medical staff of the Hospital of Rockefeller Institute for Medical Research, and has been instructor in preventive medicine at both the Johns Hopkins University Medical School and the Albany Medical College. Dr. Dublin is a son of LOUIS I. DUBLIN, PH.D.,* Vice-President of the Metropolitan Life Insurance Company, New York, N. Y., and Treasurer of the American Public Health Association.

* Fellow A.P.H.A.
† Member A.P.H.A.

CARL R. FELLERS, PH.D.,* Research Professor of Horticultural Manufactures at the Massachusetts State College, Amherst, has been called to active duty with the Army in the Chemical Warfare Section.

FRANKLIN M. FOOTE, M.D., DR.P.H.,* who for 2 years has been District Health Officer in the Kips Bay-Yorkville area of New York City, in cooperation with the Cornell University Medical College, has been called to active duty as a Captain in the Medical Corps of the Army and is stationed at Pine Camp, N. Y.

JOHN E. GORDON, M.D., PH.D.,* Professor of Preventive Medicine at the Harvard Medical School, Boston, Mass., who for some years has been serving in charge of the Harvard-Red Cross Hospital in England, has been appointed Lieutenant Colonel, U. S. Army Medical Corps and has been assigned to the Division of Preventive Medicine, Office of Chief Surgeon, Headquarters SOS, European Theatre of Operations.

IRA V. HISCOCK, C.P.H., Sc.D.,* Professor of Public Health, Yale University School of Medicine, Department of Public Health, New Haven, Conn., Lt.-Col., Reserves, U.S.A. Sanitary Corps, was called to active military service and left New Haven, Conn., September 23, 1942.

ERNEST B. HOWARD, M.D., M.P.H.,† formerly of the Division of Genitoinfectious Diseases in the Massachusetts Department of Health, Boston, is now Captain in the Army Medical Corps on Duty as Venereal Disease Control Officer assigned to the Fourth Service Command, Atlanta, Ga.

HARRY E. KLEINSCHMIDT, M.D.,* New York, N. Y., has resigned as Director of Health Education for the National Tuberculosis Association and has been appointed Director of Medical and Health Service for the American Red Cross North Atlantic Area, with headquarters in New York, N. Y.

CLIFFORD KUH, M.D., DR.P.H.,† of New Haven, Conn., who has been Chairman of Industrial Health for the Connecticut State Medical Society, has resigned and has been appointed Director of the Bureau of Industrial Health of the California State Department of Health, San Francisco.

DAVID R. LYMAN, M.D., Superintendent of Gaylord Farm Sanatorium, Wallingford, Conn., received the degree of Doctor of Science recently from Wesleyan University, Middletown, Conn.

LEE B. MAILLER, Assemblyman, of Cornwall, N. Y., Chairman of the New York State War Council's health preparedness commission, has been appointed a special consultant in the U. S. Public Health Service.

STANLEY H. OSBORN, M.D., C.P.H.,* Connecticut State Commissioner of Health, Hartford, received the degree of Doctor of Science at the 86th commencement of Tufts College recently in Boston.

ROBERT W. RIPLEY, M.D., of New York, has been appointed Assistant District Health Officer for Benton and Franklin Counties and the western portion of Walla Walla County, Washington, with headquarters in Pasco.

BENJAMIN SACHS, M.D., M.S.P.H.,† of New York, N. Y., has been appointed Director of the Acadia Parish Health Unit, Louisiana State Department of Health, with headquarters at Crowley, La.

LEON SCHWARTZ, M.D.,† P. A. Surgeon (R), U. S. Public Health Service, recently of Philadelphia, Pa., has been called to active duty and has been placed in charge of the health program for the U. S. Bureau of the Census in its new building at Suitland, Md.

* Fellow A.P.H.A.
† Member A.P.H.A.

Southern States

HAROLD B. GOTAAS,† formerly Professor of Sanitary Engineering in the School of Public Health, at the University of North Carolina, Chapel Hill, has been commissioned Captain in the Sanitary Corps and is serving as Chief of the Engineering Section of the Division of Health and Sanitation in the Office of the Coördinator of Inter-American Affairs, Washington, D. C.

HENRY HANSON, M.D.,* has been appointed State Health Officer of Florida, effective July 15, succeeding WILLIAM H. PICKETT, M.D.,* of Jacksonville, who has been commissioned in the U. S. Public Health Service. Dr. Hanson formerly served as Health Officer of Florida and recently has been working in South America, chiefly in Ecuador and Peru as technical adviser in bubonic plague eradication and in jungle fever and malaria control.

CLAIR A. HENDERSON, M.D., of Savannah, Ga., has resigned as Assistant City-County Health Officer of Savannah and Chatham County, to become Commissioner of Health of Augusta and Richmond County, effective July 1. He succeeds THOMAS B. PHINIZY, M.D.,† of Augusta, who recently resigned.

JOSEPH HIRSH,† Washington, D. C., has been called to active duty as First Lieutenant in the Sanitary Corps, U. S. Army, and assigned to the Army Technical School at Sioux Falls, S. D., where he is Assistant Medical Inspector, Sanitary Officer and Venereal Disease Control Officer.

SALLY LUCAS JEAN,* formerly Secretary of the World Federation of Education Associations and a consultant in health education, has been appointed Health Education Supervisor with the Colorado River Relocation Project with headquarters in Poston, Ariz.

ANNETTE KING, who has been associated with the West Virginia State Department of Health at Charleston for the past 17 years, has been appointed Acting Director of the Bureau of Public Health Education and Public Relations, succeeding DOROTHEA CAMPBELL,† who died September 20 after fifteen years of service as Director of the Bureau.

PAUL P. MCCAIN, M.D.,† Superintendent of the North Carolina Sanatorium for the Treatment of Tuberculosis, Sanatorium, S. C., and the Western North Carolina Sanatorium, Black Mountain, S. C., has been named to a similar position at the Eastern North Carolina Sanatorium now under construction in Wilson.

FRANK L. MCGAHEY, M.D., formerly of Calhoun City, Miss., has been appointed chief of the Grenada County Health Department.

ALLAN J. MCLAUGHLIN, M.D.,* medical director retired, U. S. Public Health Service, Washington, D. C., has recently served in Illinois as consultant to the Committee on Administrative Practice of the A.P.H.A. in connection with the state-wide survey. Dr. McLaughlin's appointment has been announced as medical administrative consultant to the Illinois State Department of Health.

NELS A. NELSON, M.D.,* of Baltimore, Md., Director of the Division of Genitoinfectious Diseases of the Massachusetts Department of Health, Boston, Mass., since 1938, has been appointed Deputy State Health Officer of Maryland. Dr. Nelson formerly served in the Division of Communicable Diseases of the Massachusetts Department of Health. He is an associate in venereal diseases at the Johns Hopkins University School of Hygiene and Public Health, and

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* Fellow A.P.H.A.
† Member A.P.H.A.

consultant to the U. S. Public Health Service.

GEORGE E. PARKHURST, M.D., of Charleston, S. C., Assistant Surgeon, U. S. Public Health Service, has been assigned as Director of the Venereal Disease Program of the Charleston County Health Department.

P. M. PAYNE, M.D.,† formerly director of the Assumption Parish Health Unit, Napoleonville, La., has been transferred to the Evangeline Parish Health Unit at Ville Platte, La., as Director.

WILLIAM H. PICKETT, M.D.,* formerly State Health Officer in Jacksonville, Fla., has been commissioned in the Reserve of the U. S. Public Health Service and has been assigned to duty as Director of Health for Kansas City, Kans., effective August 1.

GEORGE E. RILEY, M.D., Health Officer of Clay County, West Point, Miss., has been appointed Director of Hinds County Health Department, Jackson.

CURTIS M. ROBERTS, M.D., of New Albany, Miss., has resigned as Health Officer in Prentiss County, to accept a similar position in Clay County, with headquarters in West Point.

Western States

J. J. BLOOMFIELD * recently gave five lectures in connection with the University of California's Industrial Training Series, using as his topics Industrial Hygiene Problems in the United States; Effect of the War; National, State, and Local Industrial Hygiene Services; and Health Education.

FRED T. FOARD, M.D.,* Surgeon, U. S. Public Health Service, San Francisco, Calif., has been assigned as Regional Medical Officer for the Ninth Civilian Defense Region, with headquarters in San Francisco.

ABRAHAM L. GELPERIN, M.D.,† of Baltimore, Md., has been appointed Venereal Disease Control Officer of Richmond, Va., succeeding AARON WILSON BROWN, M.D., of Pocahontas, who recently resigned to enter private practice.

ELBERT GOOLSBY, M.D., was recently appointed Health Officer of Paris, Tex.

WILLIAM GROSSMAN, M.D.,* of Richmond, Va., has accepted a commission in the U. S. Army, resigning his position as Director of the Bureau of Communicable Diseases in the Virginia State Health Department.

IRVING D. JOHNSON, M.D., C.P.H.,† of Marysville, Calif., has resigned as Health Officer of the Sutter-Yuba Bi-County Public Health Unit in order to organize a new department in Marin County, at San Rafael.

EUGENE L. KIDD, M.D.,† of Centralia, Wash., formerly Health Officer of Lewis County, has been placed in charge of the unit in Snohomish County with headquarters in Everett.

DR. RAYMOND DE VAN KIMBROUGH, of Norfolk, Va., was appointed on June 1 as State Venereal Disease Control Officer for the Tidewater Area, Va.

ROSCOE C. MAIN, M.D.,* of Santa Barbara, Calif., has resigned as Health Officer of Santa Barbara County, after 13 years of service, to become senior physician in the communicable disease section of the Los Angeles County Health Department.

GRUNDY E. MCDONALD, M.D.,* resigned as Health Officer of Long Beach, Calif., on August 15, and has been succeeded by his assistant, FRANK W. STEWART, M.D.†

F. A. MUSACCHIO, M.D., M.P.H.,† formerly Director of the Acadia Parish Health Unit, Crowley, La., was recently appointed Director of the St. Mary Parish Health Center,

* Fellow A.P.H.A.
† Member A.P.H.A.

Franklin, La., to succeed DR. G. VASQUEZ, who is on military leave.

JAMES A. OUTLAND, M.D., of Murray, Ky., Health Officer of Calloway, will take over the work in Trigg County. This is a result of the resignation of LEONARD A. CROSBY, M.D., of Eddyville, Ky., who has been in charge of Caldwell, Lyon, and Trigg Counties.

W. W. PETER, M.D., DR.P.H.,* formerly Medical Director, Navajo Area, U. S. Indian Service, Window Rock, Ariz., has accepted a war service appointment as Associate Professor of Public Health in the Department of Public Health, Yale University School of Medicine, New Haven, Conn.

FRED W. SUTTON, M.D., has been placed in charge of the Health Department of Beaumont, Tex., succeeding CHARLES HUGH TODD, JR., of Beaumont, resigned.

PAUL L. WERMER, M.D.,† formerly Director of the Upshur County Health Unit, has been transferred to take charge as Director of the Waco-McLennan County Health Unit, Waco, Tex.

Foreign

EDUARDO ESCUDERO, M.D., of Santiago, Chile, has been appointed as Minister of Public Health and Social Welfare of Chile, it has been announced.

PABLO MORALES OTERO, M.D.,† has been appointed Director of the School of Tropical Medicine, University of Puerto Rico, San Juan, by Columbia University, with which the School of Tropical Medicine is affiliated. Dr. Morales has been Acting Director of the School for some months. He succeeds GEORGE BACHMAN, PH.D., who is now in China representing the American Board for Medical Aid to China in Chungking.

DR. CAESAR GORDILLO ZULETA, of Lima, Peru, has been appointed as General Director of Public Health, it has been announced.

CONFERENCES AND DATES

American Academy of Pediatrics. Chicago, Ill. November 4–7.

American Association for the Advancement of Science. New York, N. Y. December 28–January 2.

American Association of State Highway Officials. St. Louis, Mo. December 7–9.

American Chemical Society—National Chemical Exposition, National Industrial Chemical Conference. Sherman Hotel, Chicago, Ill. November 24–29.

American College of Surgeons—1942 Clinical Congress. Cleveland Municipal Auditorium. Cleveland, Ohio. November 17–20.

American Education Week—Sponsored jointly by the National Education Association, American Legion, U. S. Office of Education, and the National Congress of Parents and Teachers. November 8–14.

American Library Association — Midwinter Conference. Chicago, Ill. December 28–31.

American Public Welfare Association. Baltimore, Md. December 11–13 (tentative).

American Society for Public Administration. Chicago, Ill. December 27–28.

American Standards Association. New York, N. Y. December 10.

American Statistical Association. Cleveland, Ohio. December.

American Water Works Association—
North Carolina Section—Washington Duke Hotel, Durham, N. C. November 2–4.
Virginia Section—Jefferson Hotel, Richmond, Va. November 5–6.
West Virginia Section—Chancellor Hotel, Parkersburg, W. Va. November 12–13.
Florida Section—Miami, Fla. November 12–14.

Association of Military Surgeons of the United States. San Antonio, Texas. November 5–7.

Engineers' Society of Western Pennsylvania—Third Annual Water Conference. William Penn Hotel, Pittsburgh, Pa. November 9–10.

Florida Public Health Association. Miami, Fla. December 7–9.
Industrial Hygiene Foundation—7th Annual Meeting. Mellon Institute, Pittsburgh, Pa. November 10–11.
Michigan Public Health Association. Grand Rapids, Mich. November 11–13.
National Association of Housing Officials—Region IV. Savannah, Ga. November 19–21.
National Association of Housing Officials—Region II. December 3–5. New York, N. Y.
National Committee for Mental Hygiene—33rd Annual Meeting. Hotel Roosevelt, New York, N. Y. November 12.
National Foundation for Infantile Paralysis—3rd Annual Medical Meeting. New York, N. Y. December 3–4.
New York State Association of Public Health Laboratories — Mid-year Meeting. State Laboratory, Albany, N. Y. November 6.
New York State Conference on Social Work. Syracuse, N. Y. November 10–13.
Southern Branch, A.P.H.A. Richmond, Va. November 10–12.
Southern Medical Association—36th Annual Meeting. Richmond, Va. November 10–12.

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